NETWORK WORLD

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

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Back to Reality! Page 69.

TOLL-FREE SERVICES

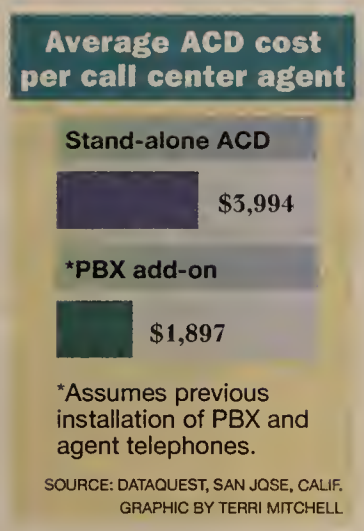
AT&T, Sprint deals could slash telemarketing costs

BY DAVID ROHDE

AT&T and Sprint Corp. are preparing to blast the 800 market wide open with programs that could save users hundreds of thousands of dollars in equipment costs for telemarketing call centers.

By the end of the year, AT&T is expected to announce general availability of a service under which the carrier will place its Definity G3 automatic call distributors (ACD) in central offices near customer call centers to spare users equipment costs and headaches. Dubbed Network ACD, the service was originally designed as a custom offering for United Airlines.

Sprint will attempt to beat AT&T to the punch by announcing next month a deal with Rockwell Switching Systems Division that will save users from having to buy ACDs, which cost about $2,000 to $4,000 per agent. Sprint will install ACDs in customer call centers, retain ownership of the equipment and charge customers an additional 1 to 2 cents per minute for incoming calls over Sprint's 800 network.



Whether the service will be cost-effective for a given user depends on such factors as the number of agents, the cost of ACD equipment and the number of calls handled.

Sprint will also maintain an inventory of ACD equipment that users can employ as needed to handle peak periods, according to Eric Shepcaro, Sprint's vice president for sales support.

Rockwell is AT&T's No. 1 competitor in the ACD market. In December, Sprint is expected to announce a similar deal with another as-yet unnamed ACD manufacturer.

For AT&T, stung by lagging growth in its 800 service (see graphic, page 67), Network ACD is expected to be

See AT&T, Sprint, *page 67*

Database companies rally around DCE

BY BARB COLE

Cambridge, Mass.

The top database vendors are expected to announce Distributed Computing Environment (DCE) support during the next few months, adding much-needed security and administration capabilities to users' distributed database environments.

IBM next month will announce plans to bolster Version 2 of its DB2/2 and DB2 for AIX databases by year end with support for DCE, including its directory services. Computer Associates International, Inc. (CA), Informix Software, Inc., Oracle Corp. and Sybase, Inc. are also embedding DCE into upcoming database and middleware offerings (see graphic, page 6).

DCE is the Open Software Foundation, Inc.'s set of integrated security, directory and transport services for building distributed applications. DCE will help bring more uniformity to distributed database environments, supporting centralized security

See Database, *page 6*

Big iron to get big push into client/server nets

BY MICHAEL COONEY

Poughkeepsie, N.Y.

IBM's mainframes will soon get critical communications and application development enhancements that could determine how large a role the big iron plays in future client/server networks.

At a briefing here, executives of IBM's Large Scale Computing Division (LSCD) promised to deliver early next year an adapter that will link Token-Ring, Ethernet and Fiber Distributed Data Interface LANs directly to System/390-class mainframes without using other Systems Network Architecture devices. IBM will also deliver tools that enable users to cluster LAN servers with mainframes and manage the harnessed processors from a single console.

What's more, LSCD is prepping an adapter — essentially a board-level S/390 mainframe — that fits into any personal computer or Reduced Instruction Set Computing workstation to let customers build and test mainframe applications in the LAN environment using familiar development tools. IBM is hoping the PC/390 adapter, which can be used by as many as 16 developers, will spur new application development for the host.

Death of the mainframe?

IBM says revenue from mainframe sales increased this quarter for the first time since the summer of 1992. IBM's Hudson Valley mainframe assembly plants now run 24-hour shifts, and some people laid off only months ago have been called back to their jobs.

IBM has been trying to reposition the mainframe as an important player in the client/server arena for more than two years. But user perception that the big boxes were ready for the scrap heap, plus the high cost of maintaining

See Client/server, *page 66*

Plugging network cost leaks

BY JOANIE WEXLER

As phone companies continue to post lush revenues and hike service prices, net managers are finding even more incentive to curb their contributions to carrier coffers.

Users can take myriad subtle measures to keep telecommunications bills in check, according to industry experts. A key one is making sure you are paying only for what you need — and what you're actually getting.

Other tactics include tweaking private branch exchange trunks and WAN circuits to keep up with staffing cuts, double-checking that you are no longer paying for disconnected links (and that you have indeed disconnected them) and making use of fax cost-saving features.

One of the biggest corporate telecommunications leaks is overprovisioned bandwidth and gear.

"This is probably the single ripest area for reducing costs — where you're paying for things you flat out don't need," said Bruce Thatcher, president of TelCon Associates, Inc., a telecommunications auditing firm in Overland Park, Kan. For example, he said when a company reduces staff, it often does not stop to think there are phone lines and equipment associated with those individuals that could be eliminated.

See Cost leaks, *page 66*

3Com optimizes Ethernet LANs for multimedia

BY MICHAEL CSENGER AND KEVIN FOGARTY

Santa Clara, Calif.

Flanked by some of the network industry's heaviest hitters, 3Com Corp. this week will announce a way to tune Ethernet to better handle multimedia applications.

3Com's Multimedia Enabled Ethernet (MEE) technology, which will take shape in new network devices and upgrades to existing products, is designed to let switched and shared Ethernets give time-sensitive multimedia packets priority over other network traffic.

The technology also will reduce jitter that can wreak havoc with video applications and will feature flow control to maintain fair access to the network for all applications. MEE, which will support videoconferencing and other multimedia traffic, could spare Ethernet users from making costly Asynchronous Transfer Mode upgrades, industry sources said.

3Com will be joined at its announcement by representatives from Apple Computer, Inc., Novell, Inc., Oracle Corp., Starlight Networks, Inc., Sun Microsystems, Inc. and other companies.

3Com's MEE products should be available

See 3Com, *page 67*

Briefs

Take that, Lotus! Microsoft Corp. last week announced a deal to integrate Northern Telecom, Inc.'s public-key security technology in its Microsoft Exchange Server, a groupware product planned for next year. The integration could help Microsoft silence criticism from Lotus Development Corp. about security features in Exchange: Northern Telecom's Entrust product uses the same public-key technology that Notes uses.

What about MCI? The Bell Atlantic Corp.-NYNEX Corp. cellular network venture, which reportedly was pursuing MCI Communications Corp. as a partner, last week allied with the US WEST, Inc.- AirTouch Communications cellular duo.

The quartet will collectively bid at the upcoming broadband personal communications services spectrum auctions to fill in the gaps needed to build a nationwide wireless network, executives said. The companies expect to be providing service in late 1996 or early 1997.

FCC sets video dial tone rules. The Federal Communications Commission last week set a tariffing policy for video dial tone service that would prohibit local exchange carriers (LEC) that want to provide cable television from subsidizing the service through telecommunications profits. The FCC has yet to approve specific LEC technical plans for cable TV provisioning.

It's a deal. Wellfleet Communications, Inc. and SynOptics Communications, Inc. stockholders last week approved the merger of the two companies into a single entity to be called Bay Networks, Inc. Bay Networks' stock started trading on the NASDAQ market under the symbol BNET last week.

Borland retrofits. Perhaps a sign of Borland International, Inc.'s inability to generate customer interest in its InterBase database, the company last week said it will optimize its front-end tools to exploit features of Sybase, Inc.'s SQL Server 10 database.

Borland's Paradox for Windows, dBase for Windows, ReportSmith and forthcoming Delphi front-end tools will have access to SQL Server features such as referential integrity and cursors, according to the company. Later, links will be built to give Borland front ends access to Sybase replication capabilities.

Modem merger. U.S. Robotics, Inc. and Megahertz Corp. last week announced a planned merger worth about $213 million. U.S. Robotics makes a variety of stand-alone modems and modem racks, while Megahertz is a maker of PCMCIA modems. Megahertz will form the core of U.S. Robotics' mobile and wireless division under the agreement, expected to be finalized in the first quarter of 1995.

Resale abroad. Under a ruling in the U.K. last week, resellers and other carriers will be able to lease and resell capacity on transatlantic cables. The decision is expected to result in lower direct dial, 800 and virtual private network rates between the U.K. and the U.S. (*NW*, Oct. 17, page 35).

AT&T's toll-free Web. AT&T last week announced it was putting its 800-number directories on-line on the Internet via a World-Wide Web server. Initially, the service will provide just phone numbers, but AT&T is hoping to convince listed companies to take out advertisements similar to those in the more traditional Yellow Pages. Let your fingers do the keyboarding at http://att.net/dir800.

Documenting standards. Several vendors last week announced support for the Document Enabled Networking specifications being developed by Novell, Inc. and Xerox Corp. for linking NetWare networks with back-end document management systems. The backers include Documentum, Inc., Eastman Kodak Co.'s Imagery subsidiary, Information Dimensions, Inc., Oracle Corp., PC Docs, Inc. and Verity, Inc.

Meanwhile, SGML Open, a consortium backing the Standardized Graphical Markup Language for documents, last week said it was forming a technical committee to examine ways of linking SGML servers with the Internet's World-Wide Web.

For details on how to reach us, see page 69.

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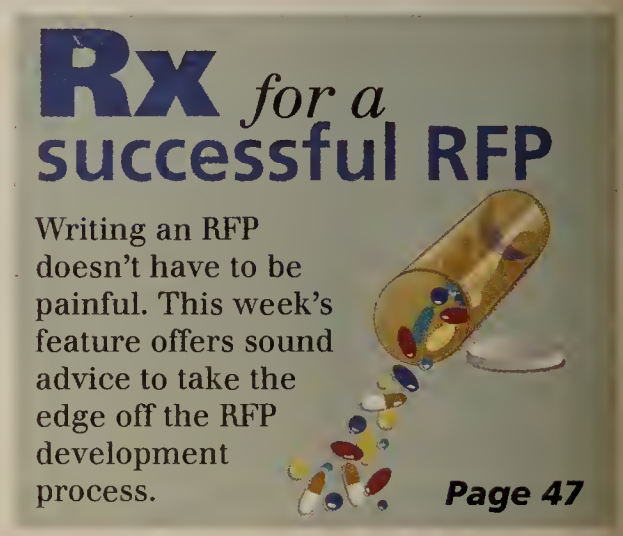

Network HELP desk

Network World *tracks down answers to your questions regarding products, services, technologies or disputes with vendors. Please submit questions to Dana Thorat at (800) 622-1108, via fax at (508) 820-1103 or (508) 820-3467, via the Internet at djt@world.std.com or via CompuServe at 73244,2673.*

I am interested in finding out how attached Tagged Image File Format (TIFF) images are sent and received over the Internet.

David Donar, Ann Arbor, Mich.

Adam Gaffin, senior writer at *NW* and author of *Everybody's Guide to the Internet* (MIT Press), replies:

Internet E-mail is based on a 7-bit design not suited for transmission of binary files such as TIFF files. However, a common system known as uuencoding translates a binary file into ASCII characters, which can then be sent as a standard text file. The recipient then uses the decoding tool, uudecode, to recompile the file into its binary format. In addition to its use in E-mail, uuencoding is also commonly used to distribute applications and images in Usenet conferences or newsgroups.

The uuencode/uudecode program is available for Unix, DOS and a majority of the other operating systems.

More recently, the Internet Engineering Task Force has developed a standard known as Multi-purpose Internet Mail Extensions (MIME), which allows for binary files to be sent as attachments to E-mail, just like in applications such as Microsoft Corp.'s Microsoft Mail and Lotus Development Corp.'s cc:Mail.

A growing number of commercial and free E-mail packages support MIME.

Our company has a 30-node Novell, Inc. NetWare network on which we are running a Btrieve database. We took down the server last week, and when it came back up, we found its response time to be much slower. Now it takes nearly two hours to generate reports from the database, compared to 40 minutes previously. The server CPU utilization rate does not even reach 20% when we use the database.

I've checked the wiring and hardware to make sure the problem is not with one particular workstation.

See **Help desk**, *page 52*

Be reachable in unreachable places.

Before you go wireless, make *sure* there are *strings* attached.

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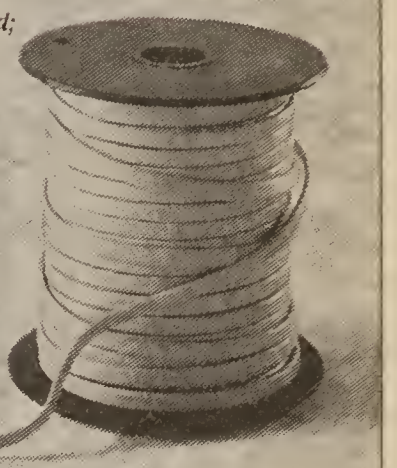

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Cisco, UB forge alliance to develop switch/router wares

BY JIM DUFFY

San Jose, Calif.

Cisco Systems, Inc. and UB Networks, Inc. last week said they will jointly develop integrated switch/routing products that build on each others' expertise.

The alliance, one of several Cisco has entered into recently with leading hub vendors, will result in a series of products designed to migrate users to high-speed switched virtual networks. The companies will leverage UB's Virtual Network Architecture (VNA) and Asynchronous Transfer Mode and hub architectures, and Cisco's Internetwork Operating System software (IOS).

LISTWIN

Specifically, the companies plan to incorporate Cisco's 4500 router into UB's Access/One hub and add IOS to UB's forthcoming GeoSwitch ATM switch and adapter product line. IOS will also be added to a new line of LAN-to-ATM "feeder" switches that UB will announce in about a month.

The companies will also integrate IOS with UB's next-generation, object-oriented virtual network messaging technology to simplify management of switched and routed environments.

The virtual network messaging scheme was developed by UB parent Tandem Computer, Inc.

It will be used to communicate routing, switching and management information between switches, routers and management consoles, the companies said.

In Cisco's CiscoFusion architecture, for example, the messaging scheme will serve as the communication vehicle by which route servers exchange route calculation information with switches, analysts said. The messaging scheme will also work with switches from vendors other than UB, said Don Listwin, vice president of marketing for Cisco.

Finally, the companies will bring management of Cisco devices into UB's NetDirector management system.

The first products from the new relationship will appear in about six months, according to the companies. UB will have worldwide distribution rights to these and the entire range of Cisco internetworking products, and Cisco and UB will offer global service and support for the new gear.

The sales, service and support aspects of the Cisco-UB relationship makes it more comprehensive than Cisco's alliances with other hub vendors, such as Hewlett-Packard Co., Chipcom Corp. and Cabletron Systems, Inc., officials from the companies said.

BILATERAL DEAL

"This is more bilateral," Listwin said. "This brings world-class [systems] integration" to users, whereas the others are mostly ports of IOS to hubs and switches.

Analysts tend to agree with Listwin, noting that this is the first such alliance for Cisco in which it can actually use software technology from its hub partner.

"UB's providing a great deal of functionality in the deal" with its virtual network messaging architecture, said Melinda Le Baron, program director at Gartner Group, Inc. in Stamford, Conn.

"This is really, truly a technology exchange," she said.

Le Baron believes the deal may soon be underscored with Cisco purchasing an equity stake in UB. A Cisco spokeswoman said the company has no near-term commitment to buy into UB but an equity stake is an option as the companies hit their milestones.

"As it stands today, it's not part of the deal," said Doug Wheeler, vice president of marketing for UB.

✆Cisco: (408) 526-4000; UB: (408) 496-0111.

On the rise

AT&T private-line costs have shot up over the past 14 months.

1993	
August	Across-the-board tariff hikes raise Accunet prices **3.9%**.
1994	
January	T45 city-pair pricing kicks in, increasing T-3 rates by an average of **5.4%**.*
March	International rates rise **3.9%**. IOC portion of T1.5 and T45 rates rises **8%**. IOC rates for services below T-1 speeds rises **4%**.
April	Prices for access services below T-1 speeds increase **2%** to **5%***; monthly access coordination fees swell by as much as **10.6%**.
August	Average **.2%** rate decrease on T-1 services with advent of T1.5 city pair pricing.*
October	AT&T files for **3%** to **10%** tariff increases across all dedicated IOC services in the U.S., and from the U.S. to Canada and Mexico.

*AT&T estimate of average overall impact caused by change in pricing model.

SOURCE: CENTER FOR COMMUNICATIONS MANAGEMENT INFORMATION, ROCKVILLE, MD.

AT&T jacks up Accunet prices

BY JOANIE WEXLER

Basking Ridge, N.J.

Seemingly unfazed by the controversy surrounding price competition in the long-distance market, AT&T last week dared return to the well for more tariff hikes.

The carrier filed for a 3% to 10% tariff increase with the Federal Communications Commission for the transmission component of its entire family of Accunet leased-line services. AT&T said the move is necessary for recouping net investment expenditures.

The 3% increases apply to services at speeds lower than T-1, components of AT&T T-1 services are rising 7%, and T-3 service elements are increasing 10%.

The proposed hike follows a series of price increases on private-line and other services from AT&T (see graphic) that have traditionally been followed by parallel moves from MCI Communications Corp. and Sprint Corp. The string of increases has fueled regional Bell holding company arguments that the long-distance market is controlled by a Big Three oligopoly and should be further deregulated to allow the RBHCs to participate (*NW*, Sept. 12, page 1).

Some users agree with the Bells.

"This shows, bottom line, that there isn't enough competition," said a telecommunications manager at a large West Coast AT&T Tariff 12 shop who asked not to be identified. "AT&T is proving the RBHCs' case" that users could benefit by having more long-haul car-

See **Accunet**, *page 6*

Cabletron triggers avalanche of SNA traffic-control products

BY MICHAEL COONEY

Rochester, N.H.

Users struggling to integrate and manage SNA and LAN traffic may find solace in a barrage of products unveiled last week by Cabletron Systems, Inc.

The company rolled out a suite of nine Systems Network Architecture-to-LAN products for its Multi Media Access Center (MMAC) hub that provides a direct hub-to-mainframe channel link and a 3174 controller blade. Also included was a new version of the Spectrum/BlueVision management platform that will let users monitor SNA and LAN traffic from one screen.

Cabletron announced the LAN to Channel Attachment Module-Bus and Tag Channel (LCAM-BC) for copper bus-and-tag connections, and LCAM-Enterprise Systems Connection (LCAM-ES) module for connectivity with IBM's fiber mainframe channels.

The channel adapters on the LCAM modules come from Bus-Tech, Inc. The Bus-Tech adapter employs a Micro Channel-to-Channel Adapter (MCCA) and driver software to directly connect to the mainframe's 4.5M byte/sec bus-and-tag channel or 17M byte/sec ESCON channel.

In addition to giving MMAC token-ring and Ethernet users direct access to the mainframe, the Bus-Tech solution supports Novell, Inc.'s NetWare for SAA Gateway for direct channel attachment of NetWare LANs. Bus-Tech recently added support for Microsoft Corp.'s Windows NT SNA Server, but the LCAM modules do not support that feature yet.

"The channel connection should save us a lot of money by not requiring us to upgrade front-end processors to add LAN connections, and it should simplify our network by not requiring some sort of LAN gateway," said Ed Boggs, senior network analyst with Holiday Inn/Rescom in Alpharetta, Ga.

Along with the channel attachment, Cabletron announced a 3174 module — the 3174 Media Interface Module (MIM) — for the MMAC that allows as many as 32 3270 devices or 16 3174 controllers to link directly with the hub. The 3174MIM is developed and manufactured for Cabletron by IBM.

Cabletron also announced the SNA Network Access Controller Media Interface Module for Ethernet (SNACMIM-E), a two- or four-port SNA/Synchronous Data Link Control-to-Logical Link Control 2 (LLC2) conversion module. With the SNACMIM-E, which was codeveloped by Sync Research, 3270 devices or 3X74 controllers can connect to an Ethernet LAN. The SNACMIM-E converts SNA to LLC2 for transmission over the LAN.

Users at the Saskatoon District Health Board in Canada figure that the SNACMIM-E already saves them about $2,600 a month in reduced telephone costs.

"We had seven separate leased lines for our SNA network, but we got rid of them with the SNACMIM-E module, which allows us to bring the SNA traffic over our existing Ethernet backbone," said Guy Paterson, director of systems and telecommunications for the board.

Also designed in conjunction with Sync Research is a new wide-area communications concentrator module, the SNA Network Access Controller Media Interface Module SNA-to-WAN Concentrator (SNACMIM-SX). The module concentrates as many as 120 SNA/SDLC or Binary Synchronous Communications connections onto a single 64K bit/sec SDLC, 256K bit/sec frame relay or X.25 WAN link. It also supports SDLC-to-LLC2 conversion.

With an eye toward letting users send LAN data over existing SNA backbones, the company announced the 7020MIM LAN Over SNA Module. This module encapsulates TCP/IP or IPX data in an LU 6.2 packet and transports it across an SNA backbone.

Product rundown

Product	Pricing	Availability
LCAM-BC	$18,995	Now
LCAM-ES	Not available	1st half of 1995
3174MIM	$11,340	Now
SNACMIM-E	$3,740 to $5,560	Now
SNACMIM-SX	$5,195 to $7,350	1Q 1995
7020MIM	$11,870	January 1995
Spectrum/ BlueVision 2.0	Not available	1st half of 1995

The company also announced Version 2.0 of its BlueVision management software. Version 2.0 runs as a VTAM application and provides SNA alert and status information to Cabletron's Spectrum management platform, which can also issue commands to SNA devices.

"We've been looking for ways to wean our network from NetView and put more emphasis on managing everything from the Spectrum platform," Boggs said.

✆Cabletron: (603) 332-9400.

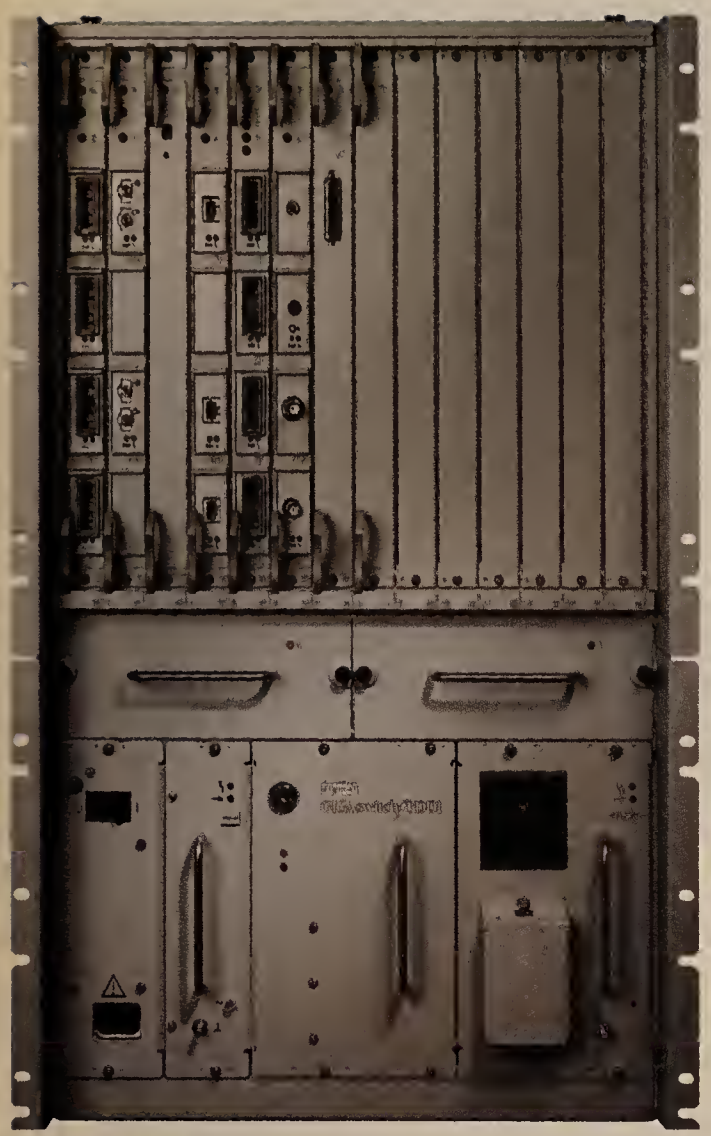
CORRECTIONS

The telephone number for Bell Atlantic Corp. in the recent switched digital data services Buyer's Guide chart (Oct. 3,page 60) was wrong. The correct number is (800) 570-4736.

A recent Internet Tip on the next generation of IP (Oct. 10, page 13) included an outdated Internet address. Documents related to IP6 can be retrieved via anonymous FTP at ndtl.harvard.edu in the /pub/ipng and /pub/ipng/presentations directories.

In a recent story on billing analysis packages (Oct. 10, page 27), it was reported that Sprint Corp. was the first carrier with a LAN-based version. AT&T already offers a LAN version, however.

SWITCH INTO HIGH GEAR.



GIGAswitch™/FDDI: The industry's fastest FDDI switch—allowing you to break through FDDI's 100 Mbps ceiling.

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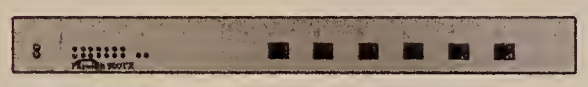

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DIGITAL KNOWS NETWORKS

Object connectivity spec is approved; battle still looms

BY ADAM GAFFIN

Nashua, N.H.

A divided Object Management Group (OMG) task force last week approved a specification — based on a new protocol submitted by SunSoft, Inc. and five other vendors — for ensuring communications among object request brokers (ORB) on a heterogeneous net.

The new General Inter-ORB Protocol (GIOP), which rides atop TCP/IP nets but includes hooks to other transport protocols, would create a standard way for ORBs to call for and send data. It is part of an overall specification called Unified Network Objects (UNO) that would be incorporated into Version 2.0 of the OMG's Common Object Request Broker Architecture (CORBA), a series of specifications aimed at creating a common method for communications between objects across a net.

The issue now goes before an OMG technical committee for four weeks of discussions and voting before it goes to the OMG board. OMG President Chris Stone said the consortium is still planning to release CORBA 2.0 specifications by year end.

CORBA 1.0 sets out the basic framework for building ORBs, but does not specify how these ORBs talk to each other, the result being that each vendor has implemented its own inter-ORB communications strategy.

Digital Equipment Corp. and Hewlett-Packard Co., which backed a proposal based on the Open Software Foundation, Inc.'s remote procedure call (RPC), vowed to fight for an official imprimatur for their technology, as well. They want their technology to be certified as CORBA 2.0-compliant. They add that UNO is an untested technology that cannot work over non-TCP/IP nets.

Where they stand

The voting on Sun's CORBA 2.0 proposal

For
- Bell Northern Research
- Expersoft
- IBM
- Iona
- Novell
- SunSoft

Against
- Digital
- HP
- Microsoft
- Siemens-Nixdorf

SunSoft, however, said UNO is based on existing protocols already in use by SunSoft and other vendors, and that the proposed specification includes a mapping provision for other types of networks. It was joined by Iona Technologies, Ltd., Expersoft, Inc., Bell Northern Research, Ltd. and ICL.

Geoff Lewis, manager of business development for object products at SunSoft, said Novell, Inc. has already demonstrated a UNO link for NetWare while ICL has written one for Open Systems Interconnection.

The Sun proposal includes specifications for connecting UNO ORBs with those using

See **Specification**, *page 66*

Database

Continued from page 1

and user registration, as well as improved interoperability between applications and different vendors' databases.

"We're enthusiastic about the fact that database firms are looking to support DCE. We have a heterogeneous environment, and we plan to use DCE to get some level of consistent, dependable access to Unix [database] servers," said Mark Anderson, computer scientist at Argonne National Lab in Argonne, Ill.

Database support for DCE

Company	Product	Level of DCE support	Availability
CA	CA-Ingres	Security, RPCs, naming facilities and unified logon	Next major release of database
IBM	DB2/2 2.0 and DB2 for AIX 2.0	Directory services	Year end
Informix	Informix-DCE/Net	Security and RPCs	Year end
Oracle	SQLNet DCE	Directory services, security, RPCs and unified logon	Year end
Sybase	SQL Server	Security, RPCs, naming facilities and unified logon	Next major release of database (12-18 months)

GRAPHIC BY TERRI MITCHELL

Analysts said DCE allows users to centrally manage database security, an increasingly important issue as companies begin to distribute databases across the enterprise. With DCE, user authentication is done at the network level, which lets users logged on to DCE access database applications without specifying a user name or password.

What's more, DCE can make client/server database systems easier to set up. With DCE, end users may be registered in one or more user groups, letting network administrators grant database access to groups of users without having to deal with individual users.

CHANGE OF HEART

In the past, database vendors have only given DCE lukewarm support. One reason is they did not believe the technology was up to snuff — something DCE 1.1 seems to be changing.

DCE 1.1, due next month, permits administrators to use DCE security without using DCE remote procedure calls (RPC). Those RPCs have been deemed unfit for transaction processing by some vendors because of poor performance.

"One of the biggest impediments to DCE has been the lack of database buy-in," said Liz Melcher, an analyst at Gartner Group, Inc. in Stamford, Conn.

With DCE, administrators establish a directory of databases across the network, and client applications that have access to DCE may access those databases by name. Unlike current client/server systems, preconfigured connections between client applications and databases are not required. In addition, the client application does not need to know where the database resides.

DCE also offers improved interoperability between applications and databases, users said.

"I want to buy plug-and-play front ends and databases. Right now, DCE is the only game in town that offers a useful level of consistency," said a software engineer at a federal systems integrator in the Northeast.

DCE HOOKS IN THE WORKS

Both Sybase and CA plan to support DCE in the next release of their databases. In both cases, DCE will ensure a standard database logon procedure for client applications, regardless of the platform on which they run.

Oracle is beta-testing SQLNet DCE, software that will enable Oracle7 databases and Oracle-based applications to exploit DCE's naming capabilities. This will make it easier for companies to relocate Oracle7 database servers without affecting user access to them. SQLNet DCE will be available by year end, according to Oracle.

Firm revamps int'l reservation net with CrossComm routers

BY JIM DUFFY

Denver

Galileo International recently installed six CrossComm Corp. routers in an effort to ensure uptime and maximize bandwidth of its Systems Network Architecture-based worldwide computerized reservation network.

The routers will enable Galileo to take advantage of international frame relay services and benefit from the fault tolerance, inverse multiplexing and 2-to-1 to 3-to-1 data compression that the CrossComm devices provide, said Doug Bell, network planner at Galileo.

"Mission-critical is extremely mission-critical here," Bell said. "We do about 430 transactions a second on one host and about 1,600 transactions on another host, so we can incur absolutely no downtime."

"Mission-critical is extremely mission-critical here...we can incur absolutely no downtime."

The CrossComm routers and frame relay links are replacing point-to-point IBM token-ring bridges and 64K bit/sec links between front-end processors (FEP).

The first phase of this project was completed six weeks ago.

A CrossComm XL20 at Galileo's Swindon, England, regional office now receives airline, hotel and rental car reservations from 8,000 European travel agencies over SITA, a worldwide X.25 network. That data is converted to Logical Link Control 2 (LLC2) or Network Basic I/O System by one of 18 IBM PC-based remote station concentrators (RSC) designed by Galileo.

The RSC then sends the data across a token-ring LAN to the CrossComm XL20, which is connected via redundant WAN circuits to an Ascom Timeplex, Inc. mux, one of five that form a transatlantic meshed T-1 backbone.

Ascom Timeplex nodes in the U.S. direct the traffic to a CrossComm XL80 router in Galileo's data center here, which feeds it to a FEP and IBM or Amdahl Corp. mainframe for final processing.

THE BENEFITS

Galileo chose the CrossComm routers due to CrossComm's Protocol Independent Routing (PIR) feature. PIR routes NETBIOS and LLC2 traffic without encapsulation in TCP/IP and its associated overhead.

PIR can also reroute data from failed circuits in 1.7 seconds, whereas competitive routers from Advanced Computer Communications, Ascom Timeplex, Cisco Systems, Inc., 3Com Corp. and Wellfleet Communications, Inc. — which were all evaluated by Galileo — took an average of 21 seconds to reroute. That caused SNA session timeouts because a FEP needs to receive an acknowledgement frame in eight seconds or less.

Installing the routers has significantly reduced equipment costs, Bell said. The FEP interfaces for 64K bit/sec circuits — called a Line Interface Channel (LIC) — cost about $10,000 each, he said. And each of Galileo's nine remote FEPs were connected to a data center FEP over six 64K bit/sec circuits.

Six LICs cost about $60,000, whereas a router costs about $10,000. Plus, adding a single token-ring interface to the FEP instead of multiple LICs boosts speeds beyond T-1 while reducing the amount of cards in the FEP.

Accunet

Continued from page 4

riers from which to choose.

The proposed tariff hikes affect the interoffice channel (IOC) component of Accunet services — the portion comprising the transmission facilities between AT&T central offices — in the U.S. and to Canada and Mexico. Unaffected, for example, are access fees.

Given that access connection fees are fixed, the IOC can account for anywhere from 1% to 50% of the total cost of a leased line, depending on the length of the link.

The tariff increases are slated to take effect Nov. 1.

The higher price tags could inspire some firms to consider public frame relay and other fast-packet technologies. Ted Boynton, manager of telecommunications at Praxair, Inc., an industrial chemicals maker in Tonawanda, N.Y., said his firm has a leased-line net from AT&T for X.25 traffic.

"We're deciding whether to move to a public or private frame relay net; the higher leased-line prices could push us toward a public net," he said.

AT&T said that once available volume discounts are figured into the equation, the overall customer impact should be an average increase of 2% to 3%. However, customers must reach certain monthly dollar commitment levels to achieve the lesser effect.

"How much you pay depends on who you are," said Eric Paulak, associate publisher for the Center for Communications Management Information, a tariff review firm in Rockville, Md. It is "arguable," he said, how much competition there is, given AT&T has increased rates four times in a year.

Hemant Vaidya, AT&T's division manager for AT&T Accunet Services, said AT&T is enhancing its Accunet services with features that are forcing the firm to raise prices. For example, he pointed to the company's new Synchronous Optical Network-based AccuRing service, via which AT&T will take over the "last mile" of net provisioning, management and redundancy.

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New NOSes, wireless wares and ATM on the road ahead

"Ready to Roll?" is Network World's *new quarterly product shipment update intended to lay out what's ready and what's not. We will continue to track products highlighted as well as newly announced offerings in future reports.*

BY PEGGY WATT

A Letterman-style top 10 list is making its way around the Internet that speculates about what the "95" stands for in Microsoft Corp.'s recently christened Windows95 desktop operating system. Suggestions range from the number of disks the product will ship, to the number of megabytes it will consume on a hard disk drive.

But No. 1 on the list is a not-undeserved jab at the vendor: "95 is the year it was *supposed* to ship."

Microsoft has a tradition of tardiness with Windows, but it is a rare vendor that has not encountered some unexpected turbulence on the flight to market (see graphic).

Not to pick on Microsoft unduly, but not only is Windows95 late, so was Version 3.5 of the company's 32-bit Windows NT network operating system (NOS) that shipped this month. The delays have had a domino effect on Windows95 and Windows NT applications and opened a (ahem) window of opportunity for others. IBM, for example, got its desktop-level OS/2 update to market last month.

But neither IBM nor Novell, Inc. has been much better than Microsoft about getting their new NOSes out on schedule. Big Blue recently delivered LAN Server 4.0, but it has not even offered an estimated ship date for a server version of OS/2 that incorporates the NOS. Novell is beta-testing NetWare 4.2, which provides an enhanced NetWare Directory Service and synchronized NetWare 3.X and 4.X administration, among other things.

While Windows95 is a desktop operating system, network users are eager for its availability as a client to use with some of the new NOSes. Greg Scott, information services manager for the College of Business at Oregon State University in Eugene, also would like to do multiple upgrades at once. He hopes Microsoft Exchange, the server-based groupware system that also has a sliding schedule, stays on target for a June release.

FAIR EXCHANGE

Microsoft Exchange is part of a crucial contest in the growing groupware market. The product has been called "the ultimate Notes" for combining the strengths of electronic mail and conferencing. But the later it ships, the more time Lotus Development Corp. has to enhance Notes and build on its market lead.

Meanwhile, Lotus has started getting some competition from other vendors, such as Collabra Software, Inc. and Oracle Corp.

UP IN THE AIR

Much of the new technology is up in the air as vendors gear up Cellular Digital Packet Data (CDPD) networks. CDPD technology supports transmission of data packets over existing cellular networks.

McCaw Cellular Communications, Inc. has the most ambitious plans for CDPD — it is building a packet data network overlaying its cellular services in 2,200 sites and is about halfway there. Meanwhile, McCaw's competition is growing: A CDPD forum this month featured 78 vendor members, and carriers such as Bell Atlantic Mobile Systems, Inc. have rolled out CDPD services.

ATM AHEAD

Over in the fast lane, a wave of Asynchronous Transfer Mode services and products is slated to hit the market soon. ATM services for carrying data, voice and video are scheduled to be available from the Big Three carriers by year end, for example. The services could encourage users to migrate traffic off of private nets, analysts said.

Sprint Corp. was first with an ATM service, but it still supports only T-3 rates. AT&T also tops out at 45M bit/sec, but MCI Communications Corp. expects to make its HyperStream ATM available with 155M bit/sec in the near term. The other two carriers are enhancing their services for higher speeds, as well.

Complementing the services will be ATM hardware offerings — largely for campus nets — from a variety of vendors. Many of the pioneers in this market have found the technology more complex to implement than their initial timetables allowed, but a slew of fourth-quarter shipments are expected.

The roll call

Product	Company	Product description	Announced	Original delivery plan		Status
Software						
Collabra Share	Collabra Software, Inc.	E-mail-based conferencing	March 1994	July 1994	🟢	Available now.
OpenView for Windows NT	Hewlett-Packard Co.	Net and systems management platform	November 1993	First half of 1994	🔴	Due first half of 1995.
LAN Server 4.0	IBM	LAN operating system	2Q 1994	3Q 1994	🔴	Shipped 4Q 1994.
Microsoft Exchange	Microsoft Corp.	E-mail and groupware system	June 21, 1994	Late 1993 or early 1994	🔴	Due first half of 1995.
SQL Server 95	Microsoft	Database with replication technology	June 1994	1Q 1995	🟢	In alpha testing, on track.
Windows NT 3.5	Microsoft	LAN operating system	4Q 1993	2Q 1994	🔴	Shipped 4Q 1994.
PBX NetWare API drivers	Northern Telecom, Inc. and Siemens Rolm Communications, Inc. (separately)	PBX-to-NetWare connectivity software	Northern: June 1994; Rolm: March 1994	Northern: 1Q 1995; Rolm: 4Q 1994	🟢 🟡	Both due 1Q 1995.
AppWare	Novell, Inc.	Application development software	June 1993	May 1994	🔴	AppBuilder shipped in September 1994; Foundation killed.
NetWare 4.2	Novell	LAN operating system	2Q 1994	4Q 1994	🔴	Due 1Q 1995.
Oracle Documents	Oracle Corp.	Groupware	September 1994	1Q 1995	🟢	In beta testing, on track.
Intermedia Server	Sybase, Inc.	Multimedia server	May 1994	1Q 1995	🟢	In beta testing, on track.
Equipment						
ATMizer 125 Relational Switch	Agile Networks, Inc.	Ethernet-to-ATM switch	August 1994	4Q 1994	🟢	On track.
ASX-200	Fore Systems, Inc.	ATM switch	July 1994	July 1994	🟢	Available now.
2220 Nways BroadBand Switch Models 300, 500/501	IBM	ATM switches	June 1994	Dec. 30, 1994, Level 1 functions	🟢	On track.
Envoy	Motorola, Inc.	Personal wireless communicator	Spring 1994	August or September 1994	🔴	Due year-end 1994.
IDNX ATM Adaption Exchange	Network Equipment Technologies, Inc.	ATM cell conversion and WAN interface module	Summer 1993	Late 1994 or early 1995	🟡	Tending late, but on track.
Vivid Workgroup Switch, Ridge, and Route Server	Newbridge Networks, Inc.	Local campus ATM switching system	March 1993	June 1994-October 1994	🟡	Workgroup switch available now; Ridge and Route Server by year-end 1994.
Intelligent Network Server	StrataCom, Inc.	Adjunct to frame relay switches	August 1994	4Q 1994	🟢	On track.
LattisSwitch System 28000	SynOptics Communications, Inc.	10M and 100M bit/sec Ethernet switch	May 1994	Year-end 1994	🔴	Due first half of 1995.
Service						
AT&T WorldWorx Network Services	AT&T	Dial-up, multivendor video-conferencing and data collaboration	June 1994	1Q 1995	🟢	On track.
InterSpan ATM	AT&T	ATM service at T-1 and T-3 speeds	November 1993	2nd half of 1994	🟢 🔴	T-3 available now; T-1 to be available at unspecified time in 1995.
AirData	McCaw Cellular Communications, Inc.	Packet data network overlaying analog cellular net	November 1993	Nationwide availability June 1994	🟡	Available in 900 of 2,200 McCaw cell sites; carrier not committing to full deployment time frame.
HyperStream ATM	MCI Communications Corp.	ATM service up to 155M bit/sec speeds	September 1994	4Q 1994	🟢	On track.
VPN Premiere	Sprint Corp.	Virtual private network with enhanced call routing and reconfiguration	January 1994	March 1994	🟢	Available now.

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INTERNET tip

BY ADAM GAFFIN

One in a series of occasional tips on Internet-based information services.

Electronic commerce

Premenos Corp., an electronic data interchange product vendor, has started a World-Wide Web server about electronic commerce. Resources include:

- ✔ **X12 and EDIFACT specifications**
- ✔ **EDI/Electronic commerce calendar of events**
- ✔ **Lists of EDI and electronic commerce organizations**
- ✔ **Links to other Internet resources**

To access: Point your browser at http://www.premenos.com.

Gaffin can be reached via the Internet at agaffin@world.std.com.

StrataCom looks to widen access to frame relay nets

BY MICHAEL CSENGER

San Jose, Calif.

StrataCom, Inc. this week will announce an access device for tying remote sites into a frame relay backbone over X.25 links, ISDN or regular leased lines.

FastPADmp (for multiprotocol) and FastPADImp (LAN multiprotocol) are optimized for supporting legacy protocols, including delay-sensitive Systems Network Architecture data, over the wide area, said Peter Alexander, StrataCom's FastPAD product-line director.

FastPADmp has 12 ports for network and user interfaces, while FastPADImp has six ports plus one Ethernet interface and an internal IP bridge or router. Both versions support SNA/SDLC and legacy protocols common in branch offices, such as Burroughs Poll Select and DEC LAT, among others.

FastPADs encapsulate this traffic in frame relay packets, then establish connections through any available service to a distant frame relay node on the corporate backbone.

To use a local X.25 service, for example, FastPAD would encapsulate packets first in frame relay, then in X.25 for transport to a frame relay node. That node, which could be either a public or a private frame relay switch, would determine the traffic's ultimate destination and send it on its way.

In the case of ISDN, if the frame relay backbone node happens to be a StrataCom IPX with the company's recently announced Intelligent Network Server (INS) attached, FastPAD gains access to frame relay's fully meshed addressing capabilities. The INS consists of call signaling software that resides on a workstation attached to the network (*NW*, Aug. 22, page 11).

FastPADs do not have to be used in a StrataCom IPX network. The frame relay implementation is fully standards-compliant and will work with any standards-based network, Alexander said.

But FastPADs are optimized for their role. They were developed as a result of StrataCom's partnership with Telecommunications Radioelectriques and Telephoniques (TRT), a French subsidiary of Philips Electronics N.V., based in the Netherlands.

StrataCom chose TRT's product because it provides traffic management features that mesh with StrataCom's own quality-of-service capabilities, Alexander said. FastPADs also incorporate StrataCom's StrataView Plus network management system and ForeSight congestion control.

To simplify maintenance at remote sites, all FastPAD configuration parameters are stored on a PCMCIA-based SmartCard. Someone at the branch office can simply plug in the box, insert the SmartCard and attach all cables in a few minutes.

Also, FastPADs' Simple Network Management Protocol-based management system lets network managers extend their view all the way down to the access level, something not easily achieved by cobbling together FRADs and ISDN terminal adapters.

"StrataCom's concentrating more on legacy protocols because there's a need, and it keeps them away from the established router vendors."

A DOMESTIC FLIER?

Given the wide availability of frame relay services in the U.S., FastPADs could prove most advantageous overseas, perhaps as an extension of global networks with a frame relay backbone here in the U.S..

But with StrataCom's INS adjunct, FastPADs also have a role in purely domestic applications.

"They will play well in the U.S., especially with the rollout of ISDN services we've been seeing," said Robert Welbourn, an analyst with The Yankee Group, a Boston-based consultancy.

Welbourn said FastPAD's limited routing capability may be a hindrance. The device supports limited IP routing but not IPX. "They're concentrating more on legacy protocols because there's a need, and it keeps them away from the established router vendors. But sooner or later they're going to have to face the fact that it's a LAN world," he said.

Available now, FastPADmp costs $3,500. FastPADImp with an internal bridge/router costs $4,500.

☎ StrataCom: (408) 294-7600.

FCC draws fire on its plan to auction public radio spectrum

BY ELLEN MESSMER

Washington, D.C.

In the equivalent of putting Yellowstone Park up for sale, the Federal Communications Commission last week decided to auction off a piece of the public's shared radio spectrum to drum up money for the national debt.

The FCC decision to auction off the nationwide 2,402- to 2,417-MHz band, which is used by the public on a shared, nonlicensed basis, threatens investments in wireless LANs, scientific and medical equipment, amateur radio and — yes — microwave ovens, which operate at these frequencies.

The FCC is going to let any firm buy this so-called Part 15 radio spectrum at 2.4-GHz to provide any mobile or fixed wireless service. Whoever buys it can shut down any equipment that causes interference with the new services.

"We'll let the marketplace determine how the spectrum is used," said FCC Chairman Reed Hundt last week, as the five-member commission congratulated itself on the decision, saying the creation of new services will bring new jobs.

But when asked if 2.4-GHz Part 15 devices could now be on the endangered species list, FCC engineers offered a somber assessment.

"This could have a serious impact," said Steve Sharkey, FCC engineer. "It's unclear what will happen in these bands, and we need more information about the ability of the bands to share services."

Congress, convinced that the federal government was hogging spectrum, passed legislation in 1993 forcing the Department of Commerce to select 200 MHz of spectrum to allocate to the private sector. The Commerce Department picked the 2.4-GHz Part 15 band as well two other bands — 2,390- to 2,400-MHz and 4,660- to 4,685-MHz, which the FCC also decided last week to put up for sale.

The commission brushed aside pleas from IBM, Motorola Corp., InterDigital Corp., Apple Computer Inc., GEC Plessey Semiconductors, Inc. and others to leave the unlicensed spectrum alone. Apple had said the transfer of the band would leave "essentially no usable spectrum in the near term for the wireless information industry."

HUNDT

The lower Part 15 band (see graphic) — from 902 to 928 MHz — is acknowledged to be more crowded than the higher 2.4-GHz range. But there may be no escape to the 900-MHz range, anyway; the FCC plans to auction two 8-MHz segments of the 902- to 928-MHz Part 15 band in the coming months, according to FCC engineer Ron Netro.

The FCC is letting automated vehicle monitoring providers use these two 900-MHz radio segments to test the antenna-based broadcast services, such as the TeleTrak service from AirTouch Communications. And the agency is now close to putting these two radio segments up for sale to vehicle-tracking services.

AirTouch, which operates its TeleTrak monitoring system in six cities, is interested in bidding on the Part 15 spectrum, said Kathleen Abernathy, vice president of regulatory affairs. "The spectrum is congested, but if we found interference from Part 15 devices, we'd talk with them and work out an accommodation."

Abernathy said a recent technical study — backed by several other tracking services — has shown that most Part 15 devices, with the exception of field-sensor devices, don't cause harmful interference with automated vehicle-location systems.

But the Utilities Telecommunications Council (UTC), a Washington, D.C.-based trade group, doesn't agree. "Our results are different," said UTC attorney Sean Stokes. The utilities industry has recorded interference with meter-reading devices and other equipment. Thirty-six utility firms now have $179 million invested in the meter-reading devices that communicate usage information, with another $773 million of investment planned.

On learning of the FCC's action, users last week voiced concern. "We really wish they wouldn't do this," said Jack Sabo, vice president of application systems at the New York Commodities Exchange, which uses a 900-MHz Part 15 device on the stock-exchange floor there (see story, page 17). "This could impact our operations."

"We really need more bandwidth for unlicensed devices, not less," said Ira Brodsky, president of consultancy Wilmette, Ill.-based Datacom Research. "The FCC is excited about the personal communications services auctions, but to act as though they want to auction off everything is simpleminded."

The auctions don't seem to end. Last week, the FCC also decided to auction off Specialized Mobile Radio (SMR) spectrum, but the current 1.8 million SMR users should not face dislocation since existing SMR services are being grandfathered from the new rules. ☎

Going once, going twice

The FCC intends to auction off 2 8-MHz bands in the 902 MHz-to-928 MHz range to vendors of wireless wideband location-monitoring systems.

Devices currently operating in the 902 MHz-to-928 MHz range:

- Cordless telephones
- Garage door openers
- Wireless stereo and video
- Wireless security alarms
- Field-disturbance sensors
- Wireless bar code readers and portable computers
- Meter-reading transponders

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GRAPHIC BY SUSAN SLATER

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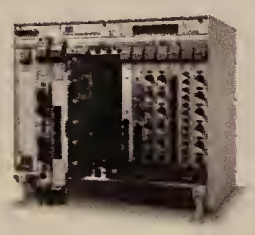
Many times it's where you're  currently routing. You may need both.

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BRIEFS

For a limited time, users of **IBM's NetView for AIX** management platform can upgrade from Version 1 or 2 to the latest release, Version 3, for a **25% discount.** The discount should save users $500 to $1,000, depending on configuration. Orders must be placed before Dec. 30, and installation must occur before Jan. 31.

IBM: (800) 426-2255.

Racal-Datacom, Inc.'s PremNet 5250 broadband multiplexer users can now add IBM **Application System/400** traffic to their proprietary, **fiber-based backbones.** Racal-Datacom offers two modules that connect AS/400s to the PremNet mux, providing either eight RJ-45 ports or four twinaxial cable interfaces for workstation and controller connections.

The AS/400 interface modules each cost $1,995. The eight-port version is available now, and the four-port version will ship by mid-November.

Racal-Datacom: (305) 846-1601.

Digicom Systems, Inc. next month will introduce a **28.8K bit/sec V.34 modem** based on its SoftModem technology. The SoftModem feature allows Digicom's internal PC modems to be upgraded through software downloads delivered by America Online. The **Connection 288DF** modem will support the final V.34 specification for 28.8K bit/sec throuput when it ships in December.

But the company said clarifications of the standard, as it enters production mode, will require software modifications best met through remote downloads.

The internal modem will cost $279.

Digicom: (408) 262-1277.

NIST has released a draft request for proposal outlining the need for a governmentwide network of **X.500 directories** holding thousands of public-key certificates for **digital signatures.** NIST, which wants feedback from vendors within 30 days concerning the public-key infrastructure plans, said the government will step in and assume liability for any patent-infringement lawsuits brought against the builders of the public-key system, which is based on the Digital Signature Standard that RSA Data Security, Inc. has claimed violates patents it holds.

Motorola brings bargain-rate frame relay to branch offices

Vanguard FRAD, revamped 6500 Series offer cost-effective options.

MICHAEL CSENGER

Mansfield, Mass.

Motorola, Inc.'s Network Systems Division today will introduce what it claims is the lowest priced frame relay access device on the market, along with enhancements and price reductions for its 6500 Series of FRADs.

The Vanguard Frame Relay Assembler/Disassembler is a stand-alone device offered both with or without an integral data service unit (DSU). Designed for small offices that are migrating from leased lines to more economical frame relay services, the standard package includes one user port and one wide-area port for links up to T-1 speed. An optional second-user port or backup WAN port is also available.

"Why not build a low-end platform that supports our high-end software?"

Rocco DiCarlo

At a base price of $799, the Vanguard is about two-thirds the price of other FRADs with equal capabilities, said Rocco DiCarlo, Motorola's director of product marketing. Key to the Vanguard's approach is its use of Motorola's existing frame relay software suite, he said.

Software features that support specific protocols and capabilities — such as Synchronous Data Link Control-to-Logical Link Control 2 conversion or Systems Network Architecture encapsulation — exist as portable "images" within Motorola's software library.

All of Motorola's FRADs share the same image library. The larger FRADs have enough memory to hold multiple images and all of their options, while the Vanguard is optimized to hold only one image at a time.

Motorola's new FRAD offerings

Product	Price	Availability
Vanguard FRAD	$799	December
Branch FRAD	$2,250	Now
SNA FRAD	$3,225	Now
FRAME	$3,600	Now

Users can choose one of three standard images or can work with Motorola's distributors to use any of the dozens of others in the firm's library. A customized image supporting specific applications can be developed by melding parts of several standard images together, DiCarlo said.

"This software support is key to Vanguard's design — it's a low-end platform that supports our high-end software," DiCarlo said. "To build a $799 FRAD is not uncommon but to be able to link it to such a resource of different options is a real difference."

Added Henry Matthes, an analyst at Datquest, Inc. in San Jose, Calif., "Motorola might be doing something weird, like actually listening to their customers before they go and develop new products. There's no sex to the product line whatsoever, but they do a nice job of implementing real-world features."

Having all the products share the same software library allows a migration path that other low-end FRAD vendors cannot promise, he added.

Available in December, the Vanguard FRAD will cost

See Motorola, *page 17*

Routing guru takes on ATM challenge

Q&A

Cascade Communications Corp., a wide-area switch company, earlier this month announced it hired John Moy, author of several Internet Engineering Task Force routing specifications, to serve as its chief ATM software architect.

Moy was previously the software architect for router products at Proteon, Inc., a position he held while also chairing the IETF's OSFP routing protocol group and doing other standards work. *Network World* Senior Writer Michael Csenger talked to Moy about the technical challenges ahead in bringing ATM into the router world he helped create.

Why the jump to Cascade?

Because it's doing very well and has a lot of interesting work going on here, a lot of opportunities. Cascade's customers are trying to do ambitious things, with tough requirements for their networks, and that really helps to build a superior product.

Cascade hired me to concentrate on interesting routing issues, often for specific customer problems, and to then fold those solutions into the core product line.

How does your routing background play into ATM?

ATM has to do a more complicated routing job than an IP router. It's becoming more of an issue now as ATM networks are growing. A small ATM LAN needs no routing decision; it only affects you as you start to scale up.

The difference between IP and ATM routing is that with ATM, the routing only happens when a circuit gets set up. Once a link is up, the cells are handled and forwarded by hardware. In IP routers, you make the same decision, but you have to do it with every packet that comes along.

"I heard 10 years ago that people were going to do TCP/IP routing in silicon, and I still haven't seen it. There's always going to be software."

Where do you draw the distinction between ATM hardware and software? The point of ATM switching is to handle decisions in silicon for greater speed.

The handling of cells has to be done in silicon, which is why it seems the routing should all be hardware and the signaling software should run quietly in the background.

With permanent virtual circuits, this is mostly so. The software is called upon to set up a circuit and then waits for the next request. But once you get into switched virtual circuits, you need the software actively monitoring all the time.

With SVCs, the routing decision needs to be more informed, because it's allocating bandwidth on the fly and making sure that all [service] parameters are met for every circuit through the switch. So the software has to be integrated with the hardware — the buffers, for instance — and the distinction starts to get muddled.

Does the software ultimately get nailed down to the point where it can be implemented in hardware, as well? Ten years from now, will we have silicon to handle SVC signaling?

I heard 10 years ago that people were going to do TCP/IP routing in silicon, and I still haven't seen it. There's always going to be software. As protocols become more mature, there's a tendency to try and implement them in silicon, but the issue is that new features always come along and are always done first in software.

Is it a matter now of transposing into ATM all that's been done already with TCP/IP routing, or is this all new terrain?

It's sort of a mix. A lot of the work that's been done in the TCP and OSI datagram environment translates into what the ATM Forum is doing with its connection-oriented protocol.

But there are new issues being tackled by both groups. The IP community is struggling with how to establish quality-of-service guarantees, which ATM is also trying to solve but differently because it's connection-based.

Does TCP/IP have a long life ahead, or is it just a matter of IP over ATM until native ATM drivers and applications come along?

See Guru, *page 17*

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MOTOROLA

SHORT-RANGE MOBILE DATA

Vendors plan enhanced versions of wireless data communicator

BY ELLEN MESSMER

Nashua, N.H.

Granite Communications is teaming with GEC Plessey Semiconductor, Inc. to produce new versions of Granite's VideoPad wireless data communications equipment that will support higher throughput and more users.

The VideoPad is used for wireless data communications in applications ranging from warehouse inventory systems and restaurant order taking to New York Stock Exchange trading.

ALLEN ROSENBERG

Employees at the American Stock Exchange test VideoPads from the trading floor.

Despite its name, the VideoPad is a 20-ounce, 7- by 4-inch electronic tablet with an LCD screen that transmits and receives only data.

It operates at 45K bit/sec over 900-MHz shared frequencies via a base station antenna located as far as 1,000 feet away and connected to an Ethernet LAN.

Granite and GEC Plessey will soon ship a similar system that works in the 2.4-GHz shared bands in Europe and the U.S.

Like the current 900-MHz model, the 2.4-GHz base station, scheduled to ship the first quarter of 1995, will support as many as 250 VideoPad users.

But the wider bandwidth available at 2.4 GHz will allow as many as 75 base station antennae to share spectrum within a single large site, as opposed to the maximum four-base station limit at 900 MHz.

In a typical configuration, each VideoPad base station has a wire line link to a personal computer acting as the VideoPad server to remote databases. Users can write their own applications for the DOS-based VideoPad or buy them from third-party application developers such as Bensenville, Ill.-based Applied Microsystems, Inc.

The VideoPad, which has signature-capture capability and an optional bar code scanning module, works in the public-shared bands so users do not need a Federal Communications Commission license.

By mid-1995, Granite and GEC Plessey plan to ship yet another version of VideoPad that will boost throughput to 180K bit/sec and expand the number of VideoPad users each base station antenna supports from 250 to 4,000.

They will also redesign the product to support roaming by enabling as many as four base stations to be tied to a LAN and modifying the proprietary VideoPad protocol around the TCP/IP addressing format, said Paul Smola, executive vice president of operations at Granite.

The American Stock Exchange in New York has been testing VideoPad for sending stock-report data from the trading floor. And the device has been used for more than a year at the New York Commodities Exchange in the World Trade Center.

"We have 60 people using VideoPad to do price reporting from the futures exchange floor," said Jack Sabo, vice president of application systems for the exchange. "It works great."

The exchange has installed two base stations, with another set for backup. The exchange floor itself will not require the roaming feature of the VideoPad, Sabo said.

But Sabo also noted that VideoPad's support for both greater bandwidth and a larger number of users means that it may be considered for other business applications in the future.

The 2.4-GHz version of VideoPad will cost $3,500 for the hand-held unit and $3,800 per base station.

The roaming product with 180K bit/sec throughput will cost $3,700 per unit and $4,000 per base station.

✆Granite: (603) 881-8666.

Motorola

Continued from page 15

$799, or $999 with an integral DSU. An optional second port brings the price to $1,099. Simple Network Management Protocol support is standard on both models.

6500 SERIES RECOMBINATED

Motorola is also announcing new configurations and economical feature packing for its 6500 Series of FRADs.

These devices support a larger set of Motorola's software images and provide multiple ports for larger office needs.

The newly configured products include Branch FRAD, SNA FRAD and Frame Relay Access Multiplexing Element (FRAME). Both Branch FRAD and FRAME are offered in optional versions with flash memory for remote software downloads, making for five new products altogether.

All 6500 Series FRADs have six ports for local and WAN connections.

Branch FRAD is designed for branch offices with a mix of legacy protocols and X.25 traffic that users want to mix together over frame relay links.

It is priced at $2,250, or $3,000 with flash memory.

SNA FRAD, priced at $3,225 supports SNA traffic over frame relay services.

FRAME is intended for offices that already have routers or bridges supporting frame relay. It lets users multiplex legacy traffic onto those same frame relay links for cost savings, DiCarlo said, and can switch traffic locally between ports.

FRAME lets users multiplex legacy traffic onto frame relay links for cost savings and can switch traffic locally between ports, DiCarlo said.

It costs $3,600, or $4,450 with flash memory.

DiCarlo said Motorola's packaging of these feature sets will save users as much as 55% off the price they would pay when ordering each feature separately.

For instance, FRAME FRAD with flash memory, priced at $4,450, would cost $9,975 if ordered with a collection of separate options.

✆Motorola: (508) 261-4000.

Guru

Continued from page 15

TCP and ATM are going to coexist for a very long time. They'll both succeed and have to interoperate.

There is some argument or rivalry between the ATM Forum and the IETF. They're often working on the same problems in different ways, and the two camps can get pretty charged. But I don't think one technology is going to be dominant.

You work on committees for both groups. How do you bridge the two?

Well, I helped write the [IETF's] OSPF protocol, and at the forum, I'm contributing to the [Private Network-to-Network Interface, to link multivendor ATM equipment]. P-NNI looks a lot like OSPF, so I think I can help build that specification.

P-NNI Phase 0 came out this summer as sort of a stopgap until the real specification is ready next year. What issues will users face when it comes time to upgrade to P-NNI Phase 1?

There is some danger that users will have to reengineer their nets when Phase 1 comes; Phase 0 won't be compatible with Phase 1. Phase 0 uses static routing and requires a lot of manual configuration, while the goal with Phase 1 is to allow auto-configuration. The issue is that a mix of switches with a mix of P-NNI versions won't talk to each other. A lot of customers don't like having to upgrade their whole network at once; they'd rather do a few nodes and watch them for a while.

As ATM software advances, how are users going to shop for equipment, in terms of comparing algorithms and all the code that doesn't really show itself until a net is up and running?

I suppose you'll always have to start with the product literature to see what features the vendors support.

But you're right that success will depend on the algorithms a switch uses to reserve resources. It's something that can only be determined by testing in a lab. The actual performance matrix is going to be very difficult for most users to understand.

Firm boosts host connectivity suite

BY MICHAEL COONEY

Bellevue, Wash.

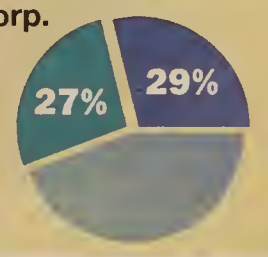
Attachmate Corp. last week rolled out a group of products that are designed to give users easier and less expensive access to mainframe resources.

The firm announced Enterprise, a software suite that bundles its 3270 and 5250 terminal-emulation products in one package, and Select, a family of software products that gives personal computers access to a variety of host computers and databases.

Enterprise brings four Attachmate emulation products together in one package that can run on any Microsoft Corp. Windows-based PC. The four products are: Extra, a 3270 emulation package; Rally for AS/400, a 5250 emulator; Kea, a PC-to-Digital Equipment Corp. VAX connectivity program; and Link, TCP/IP software for connecting to Unix hosts.

Each package supports as many as 26 sessions per user with any mix of hosts, said Steven Voit, Enterprise product group manager for Attachmate. Users can also cut and paste data from one host application to another.

IBM and Attachmate are almost neck and neck atop the PC-to-host connectivity market, with IBM holding 29% and Attachmate holding 27% of the installed base. Companies such as Digital Communications Associates and Eicon Technology fill out the rest of the market, according to International Data Corp.



According to Voit, Enterprise will save users money by integrating the four emulation packages into a single $595 offering that is available now. Individually, the four packages cost $200 to $400.

"We liked that we could buy a single package from a single vendor that provided access to multiple hosts," said David Morales, a data systems analyst with the Beverly Hills Municipal Court in California. The court has IBM 3090 and ES/9000 mainframes, Application System/400s and Hewlett-Packard Co. HP-9000s.

Select, Attachmate's other new product family, includes database query and reporting tools. It will run on any Windows PC and give it access to IBM's AS/400 database, enabling users to import AS/400 data to PC applications. Select will be included in a future version of Attachmate's Rally PC-to AS/400 terminal-emulation package. Current Rally users can upgrade to the Select product for free.

For Windows and OS/2 clients, the firm announced Select for Database Access, which provides native support for IBM's Distributed Relational Database Architecture and Microsoft's Open Database Connectivity-compliant databases, including IBM's DB2 as well as Sybase, Inc., Oracle Corp. and Ingres databases.

Data from these databases can be brought into any PC application. Select queries can also be turned into Microsoft Object Linking and Embedding objects and embedded in other applications, Voit said.

Included in the package is Select Supervisor, an administrative tool that will let IS managers customize and control access rights to database files.

Select for Database Access will be available in January for $1,000. No pricing has been announced for Select Supervisor.

✆Attachmate: (206) 644-4010.

Video smorgasbord turns heads at TeleCon show

BY ELLEN MESSMER

Anaheim, Calif..

At the recent TeleCon XIV show here, a host of new videoconferencing products for both desktop video and room systems vied for the attention of show attendees who wandered among booths of interactive video heads.

RADVision, Ltd., a division of The RAD Group, demonstrated its video interface unit for the personal computer that packetizes audio and video output from any H.320-compatible desktop system for distribution over Ethernet and wide-area nets. RADVision's OnLAN System offers a way to use ISDN-oriented H.320 on a LAN while still maintaining interoperability with H.320 room, group or desktop systems. H.320 is the International Telecommunication Union's set of audio and video standards for videoconferencing.

Once the H.320 audiostream and videostream is packetized, it is routed over the LAN via the RADVision video router. If a connection to the wide area is needed, a RADVision gateway is employed to transmit the packetized video over an ISDN link, said Amos Amir, managing director at RADVision. The desktop interface costs $3,500, the video router is priced at $4,500, and the gateway is tagged at $7,500.

OnLAN, which will ship in December, is being beta-tested at the office of the prime minister of Israel and here in the U.S. at Irvine, Calif.-based Workstation Technologies, Inc. "It's working well on the six H.320-based desktop video PCs where we've got it running," said Tim Dubas, marketing manager at Workstation Technologies.

PANASONIC'S VISION

Meanwhile, Panasonic Broadcast and Television Systems Co. used the show to introduce four new H.320-based systems.

The desktop unit in the Panasonic VisionSeries line is a dedicated videoconferencing system for dial-up over Basic Rate Interface ISDN. Priced at less than $14,000, it includes the coder/decoder, a BRI interface card, software, a microphone and a camera.

Panasonic is also fielding three new rollabouts that range in speed from 386K bit/sec to T-1 and in price from $14,000 to $30,000.

All of the Panasonic VisionSeries systems operate at 30 frame/sec and include a multiconferencing capability that lets users broadcast one-way live video to six locations simultaneously without a multipoint control unit.

Video for mobile PCs has been largely neglected to date, but Alpha Systems Lab, Inc. introduced a video card and whiteboard data-sharing software for use with a Toshiba Corp. T6600C and T6600 C/CD laptop computer. The package costs $1,195 and will ship in mid-November.

GREAT LAKES

Amid the hubbub of video displays, IBM sought to drum up interest among codec vendors and software developers for its Lakes channel-manager architecture. Lakes defines a way to synthesize videostreams, datastreams and audiostreams over multiple networks, including TCP/IP, Novell, Inc.'s IPX, ISDN and Advanced Program-to-Program Communications links.

The Lakes middleware, with its data-protocol conversion software that sits in the desktop video PC, offers a way to synchronize audio-, video- and data-sharing applications so that motions and speech seem natural, even when signals are shipped across multiple types of networks, said Bob Rittle, market development manager of conferencing products at IBM's network software division.

Lake works with videoconferencing products that comply with the H.320 standards and data-sharing products that comply with the T.120 standard.

"Nothing in the new T.120 standard gives us a way to do this synchronization," Rittle said.

So far, however, no codec vendor or software developer has declared support for the latest version of Lakes, which was released last May — a critical element for the middleware to work, Rittle noted.

IBM last week demonstrated Lakes synchronization support across an isochronous Ethernet LAN provided by National Semiconductor Corp.

"We're trying to start the drumbeat of awareness on this," Rittle said.

Comments?

See "How to reach us" on the back page.

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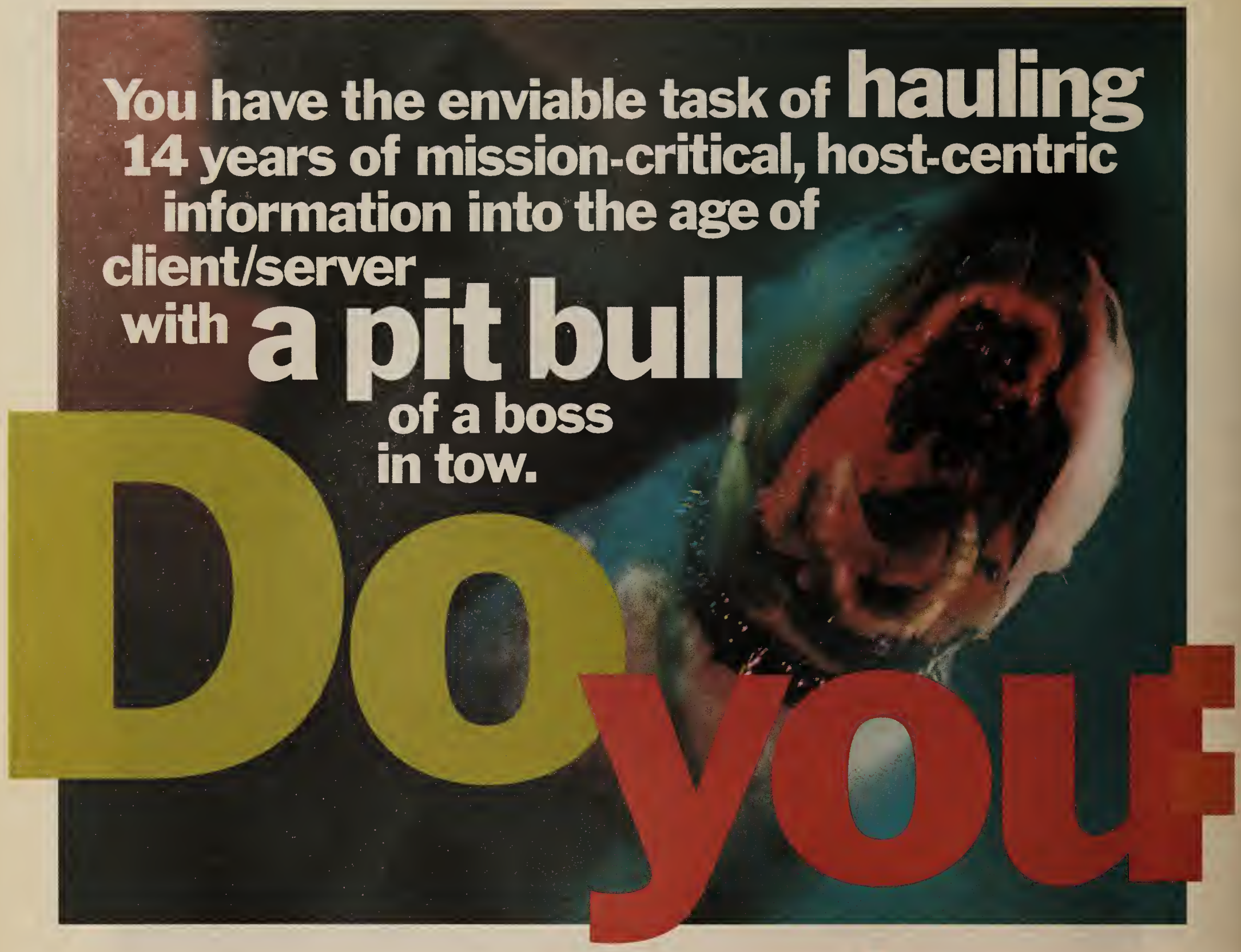

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BRIEFS

Olicom USA, Inc. last week announced a new **token-ring adapter** for computers based on the 32-bit Peripheral Component Interface (PCI) bus specification. The device is designed to support high-end applications such as multimedia. The 4M and 16M bit/sec adapter supports unshielded and shielded twisted-pair connections. It can be managed via the Simple Network Management Protocol and the Desktop Management Task Force's Desktop Management Interface.

The Token-Ring PCI Adapter will be available in early December for $580.

Olicom: (214) 423-7560.

HawkNet, Inc. of Carlsbad, Calif., last week said it is shipping NetTune Pro, a Novell, Inc. **NetWare Loadable Module (NLM)** that incorporates artificial intelligence technology to help tune servers. The product's SmartTune functions use built-in rules and trends noted in an ongoing database to make automatic adjustments to more than 60 internal parameters on NetWare 3.1X servers. The product is designed to monitor and detect high server usage patterns that degrade network performance, then adjust the set parameters to compensate.

It is priced at $895 per server.

HawkNet: (800) 429-5638.

AT&T Wireless Communications last week announced that its WaveLAN **wireless LAN** product will have a wider roaming range with the release next month of WaveAround, which lets the mobile user move within and between wireless LAN cells. WaveAround extends WaveLAN's capabilities to support uninterrupted access to the network so users can exchange data while moving, and lets them automatically recover from out-of-range dead spots. WaveLAN is available as PCMCIA plug-in cards for portable devices. WaveAround comes bundled with the WaveLAN Access Point, or WavePoint, and WaveLAN PCMCIA client drivers.

WaveLAN PCMCIA costs $695 and WavePoint costs $1,995.

AT&T: (800) 334-5454.

Whitetree aims for desktop ATM

Start-up promises less than $1,000 adapter/switch solution.

BY PEGGY WATT

Palo Alto, Calif.

Start-up Whitetree Network Technologies, Inc. says the right speed for the desktop is $500.

"It's not a bandwidth answer, it's an economic answer," said Maureen Lawrence, chief executive officer and president of the year-old Palo Alto, Calif.-based firm, which plans to ship its first 25M bit/sec Asynchronous Transfer Mode products next year.

Keeping price in mind, the 21-employee firm expects to deliver an ATM adapter and switch package for less than $1,000 — roughly $500 apiece for the switch and adapter. That price will enable customers to go directly from Ethernet to ATM, rather than thinking they must move in stages because of ATM's perceived cost, Lawrence said.

"And prices will drop with volume," she added.

Whitetree is focusing on ATM's ability to support teleconferencing and multimedia to the desktop. This runs contrary to the common perception that ATM is strictly a backbone solution because of its expense.

But Whitetree's philosophy is gaining support. For example, Madge Networks, Inc. recently took a 10% stake in Whitetree under a joint development deal.

Whitetree also partnered with IBM in August to spearhead the formation of the ATM25 Alliance, an ad hoc task force of vendors focused on setting interoperability standards for 25M bit/sec ATM. They will present their recommendations next month to the ATM Forum, a standards group of both vendors and users who chose to first develop a 51M bit/sec ATM specification.

"The weight of IBM behind the ATM25, perhaps pushing that as an upgrade to their token ring, may formulate a market," said Marty Palka, principal analyst with Dataquest, Inc. in San Jose, Calif. "The big opportunity is that it runs on Category 3 cabling."

Whitetree Network Technologies, Inc. miniprofile

Based: Palo Alto, Calif.

Founded: 1993

Primary products: LAN adapters and switches based on 25M bit/sec ATM technology; to ship in first half of 1995.

Funding: $9 million in venture capital. Investors include Institutional Venture Partners and Matrix Partners.

Founders: Maureen Lawrence, president and CEO; Kingston Duffie, chief technology officer and vice president of engineering; and Denise Savoie, vice president of business operations.

But companies may plunge forward and invest in Category 5 wiring or fiber and surpass 25M bit/sec ATM, he added.

For companies planning to move to higher speed ATM, the 25M bit/sec solution remains an option.

"ATM scales down — you can go from 155M

See **Whitetree**, *page 28*

LANNET 100Base-T hub module to provide higher speed server access

BY KEVIN FOGARTY

Paris

LANNET Data Communications, Ltd. will announce at NetWorld+ Interop 94 here this week a 100M bit/sec Ethernet module for its MultiNet switching hub.

The LANswitch LFE-100 is a single-port device designed primarily to provide a higher speed connection between servers and MultiNet hubs. This will help ease throughput for users in switched or shared Ethernets trying to access servers via the Multinet hub.

As many as 16 modules can be inserted into a single MultiNet chassis. Users can mix LFE-100 modules, which provide dedicated fast Ethernet connections, and other LANNET modules. That way, a single-hub chassis can support traditional 10M bit/sec shared Ethernet with high-speed dedicated switched Ethernet connections at both 10M bit/sec and 100M bit/sec to high-volume workstations or servers.

The new module, which connects to the MultiNet's 1.28G bit/sec cell-switching bus, has a single RJ-45 connector supporting a Category 5 unshielded twisted pair to the server or another net device. The module converts data cells to 100Base-T frames and vice versa.

The LFE-100 is a relatively easy and inexpensive way to add a 100M bit/sec pipeline between a server or high-end workstation and a hub supporting Ethernet segments, said Christopher Serjak, consultant at Northeast Consulting Resources, Inc. in Boston.

"It's the first step toward a real integrated switching architecture that combines 10M bit/sec switching with 100M bit/sec switching," Serjak said.

Ultrasound hardware manufacturer Advanced Technology Laboratories (ATL) in Bothell, Wash., is "anxiously awaiting" LANNET's new module to link workstations to its Sun Microsystems, Inc. servers, said Daniel Lee, network manager at the firm.

Adding 100Base-T connectivity between hubs and servers will save ATL money by giving it enough bandwidth in that situation to avoid installing fiber-optic cable, as it is doing in other parts of its network.

The LFE-100 will be available in December for $5,995.

✆LANNET: (714) 752-6638.

Reality Check

Product: LANswitch LFE-100
Company: LANNET

The benefits:
- Adds 100M bit/sec switching to existing chassis-based hub.
- Allows multiple 100M bit/sec cards per chassis.
- Combines 10M bit/sec and 100M bit/sec switching on same machine.

The drawbacks:
- Only 1 port per card.
- No connectivity to products based on competing 100VG-AnyLAN specification.

The user view:
"This is a very effective solution that gets you to a much bigger pipe for a fairly low cost."

Daniel Lee

Arcada to ship Windows NT backup support

BY PEGGY WATT

Lake Mary, Fla.

Arcada Software, Inc. expects to ship next month an enhanced enterprise version of the network backup and administration tools bundled with Microsoft Corp. Windows NT.

Arcada's Storage Exec 2.0 applies mainframe backup concepts to a distributed PC LAN environment, such as queuing backup jobs and automatically tracking and labeling tapes. It can be used to control backup procedures on a virtually unlimited number of Windows NT servers distributed across an enterprise LAN internet.

Competition looming

Arcada rival Palindrome next year will ship a product called Milan to control Palindrome's Network Archivist, Backup Director and Palindrome HSM tools.

The backup tool bundled with Windows NT 3.5 Server actually uses Arcada technology. Microsoft's information systems group sought out Arcada for a mission-critical backup program when they were converting Microsoft's internal OS/2 LAN Manager servers to Windows NT. Microsoft is now using Arcada products to govern 800 NT servers.

The firm later asked to incorporate Arcada technology in Windows NT.

"We got some good mileage and a great test bed," said David Krinker, business unit director for Arcada's Windows NT product group.

Storage Exec uses a technique called Intelligent Session Management to queue backup jobs and send them to available tape servers or other devices. The method is intended to reduce network traffic, balance loads and provide fault tolerance by automatically rerouting an interrupted backup.

Storage Exec supports any Small Computer System Interface tape drive and now accommodates autoloaders. Krinker expects to add support for optical devices next year.

The backup component of Storage Exec, Backup Exec 2.0, includes Media Tracker, which automates backup procedures and tracks tapes. The update will be free for existing customers; licenses are based on the number of tape devices used and start at $2,385 for three tape devices.

See **Arcada**, *page 28*

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ADVANCING THE ART OF PRINTING

NET RESULTS

by Mark Gibbs

Superservers: an evolutionary dead end

Charles Darwin summed up evolution as "the survival of the fittest."

What Charlie was driving at wasn't that the monkey that could bench-press 250 pounds was the most likely to out-compete his fellows and pass on his Levis (get it?). His point was that the organism that fitted its ecological role more effectively than others was going to win the crapshoot of life.

The same paradigm applies in the computing world. The data dinosaurs, or mainframes, were edged out by a new adaptation that fit better into the business environment. This new adaptation, an information mammal called the PC, ran rings around the "datasaurs."

Actually, the ecology of computing is less like an established environment and more like a violently heaving and bubbling primordial soup. Out of this heady, frothy mixture have come some interesting adaptations and — along with them — a number of evolutionary dead ends.

One of these dead ends is the superserver.

At one time, the superserver concept looked like the logical route to achieve improved network performance and reliability. Superservers promised blinding performance and phenomenal scalability. In reality, they've delivered adequate scalability, but a poor price/performance ratio and a set of proprietary technologies that look as useful as the human appendix.

But what we're now seeing is the next evolutionary trend that will make superservers into digital fossils, cranky colophons in the history of computing, superfluous side streets on the road of network evolution... (Sorry, the spirit of Robin Leach overcame me for a bit.)

This next trend is toward high-performance servers that are based on standard technologies. The key technology trends appear to be the high-end computer architectures, such as Extended Industry Standard Architecture and Peripheral Component Interconnect; high-quality components; fast drives with RAID; and superb systems integration.

This indicates that standards and cost-effectiveness are now the key factors in high-end server technology.

Take, for example, Compaq Computer Corp.'s ProLiant. I recently got my sweaty hands on one of these Intel Corp. Pentium processor-based systems for evaluation, and I didn't want to give it back.

The ProLiant exemplifies what I see as the future of mainstream network servers. It is well priced, beautifully engineered and delivers terrific performance.

But where Compaq has really risen above the herd is in system integration. The ProLiant has hot-swappable RAID and, as an option, an installation system called SmartStart. SmartStart comes on CD-ROMs and allows you to install Windows NT, NetWare 3.X or 4.X, or SCO Unix.

From my experience, the NetWare 4.X installation process is as painless as NetWare installation can be. This is because Compaq knows the target hardware: Much of the configuration is either done for you or significantly simplified.

This is the kind of network server platform that network managers want. The small performance gains that you might get with superservers are expensive in comparison to the cost/performance that standards-based hardware delivers.

It makes sense that hybrid proprietary technologies are not going to be an effective solution unless they are the basis of a new paradigm.

But as new paradigms are almost always expensive and less stable, they are only suitable for specialized market needs.

So what can we say? Not much more than "So long" to the superservers and a big "Hello" to the new standards-based servers.

Darwin would be impressed.

Gibbs is a consultant and writer in Ventura, Calif. He can be reached at (800) 622-1108, Ext. 504, or on the Internet at mgibbs@rain.org.

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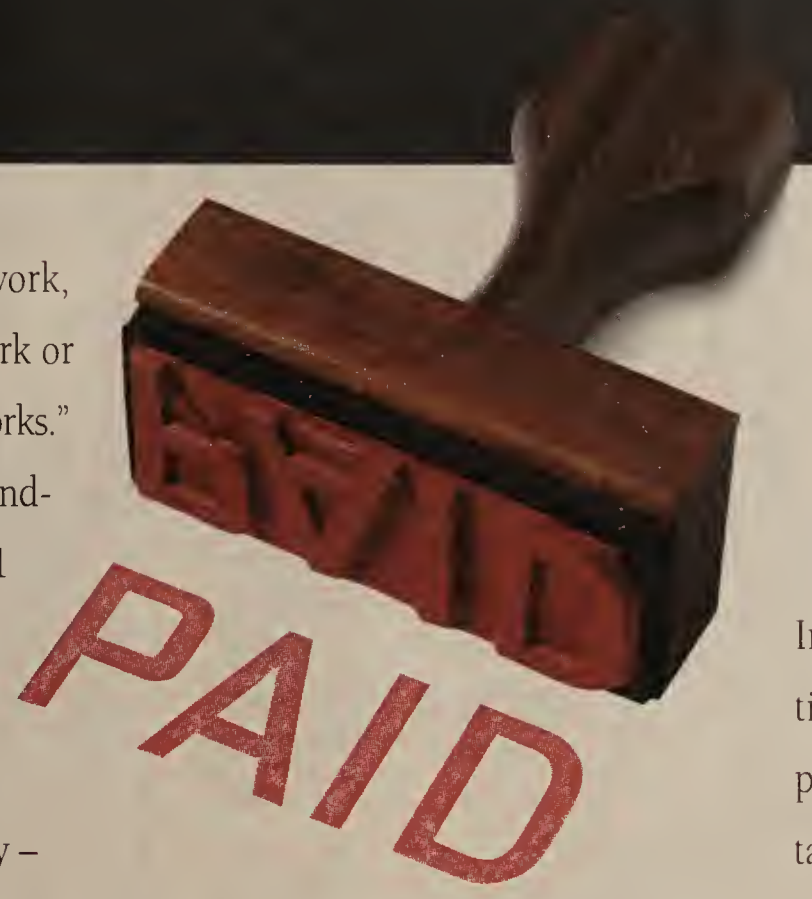

Looking at your wide area network, you may be thinking, "Free network or not, why change what I have? It works." But at what cost? Compare the bandwidth efficiency of your WAN's T1 multiplexers to Magellan Passport's and you'll see you can't afford *not* to switch.

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For voice, Passport's silence suppression saves bandwidth by detecting the gaps in phone conversations, eliminating them and sending data in their place. If more bandwidth is needed, Passport will instantaneously compress voice traffic to make it available.

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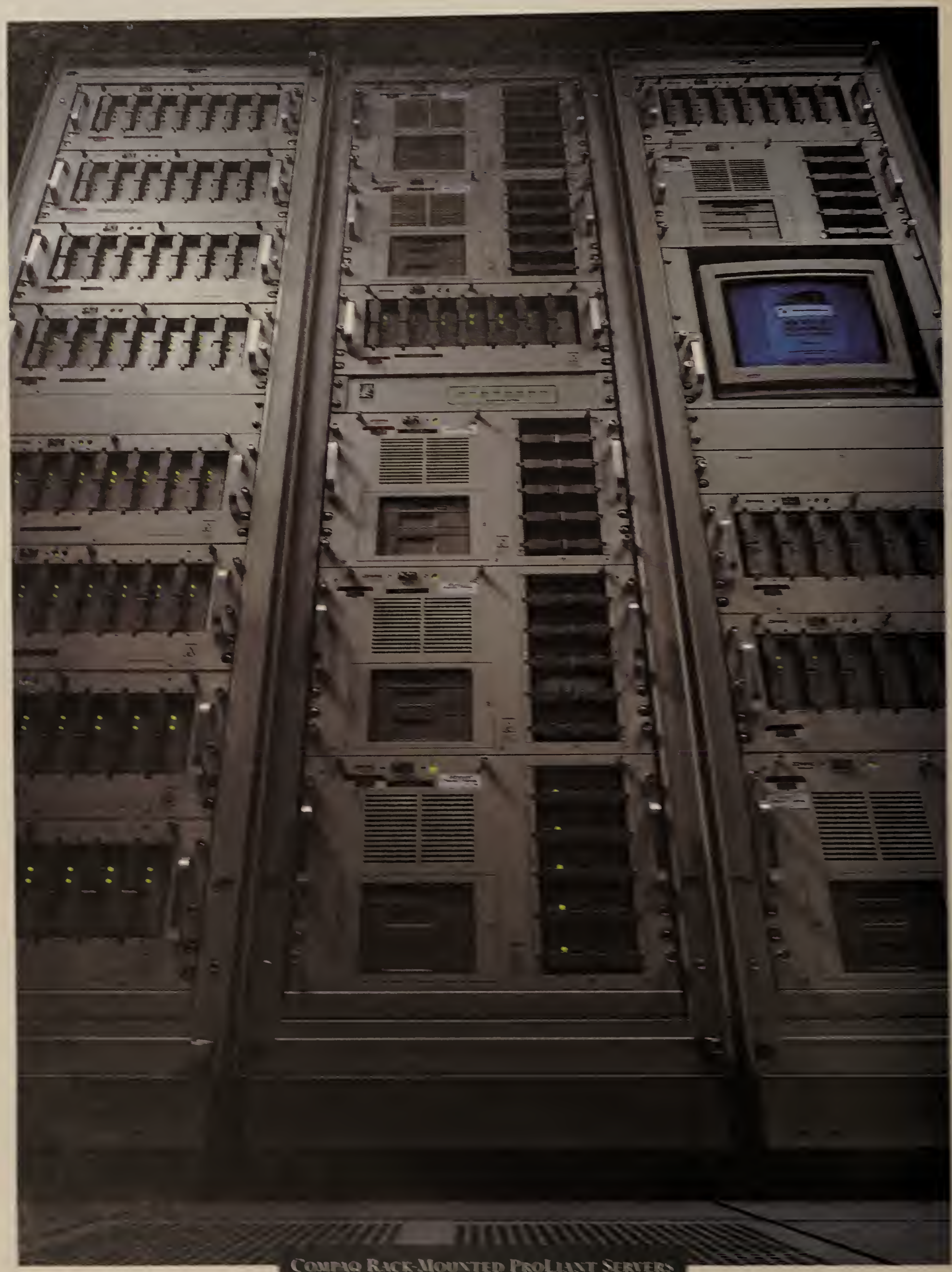

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Windows Connectivity Forum

IBM's Warp-ed Windows connectivity

By Joel Diamond
Technical director

WUGNET
Windows User Group Network

76702.1023@CompuServe.com

Not very long ago, an IBM OS/2 user dropped by the Windows Connectivity Forum (WINCON) and asked a question regarding Microsoft Corp.'s Windows for WorkGroups (WFW) 3.11 compatability under OS/2 2.1 and the new OS/2 Warp 3.0.

Forum members who have first-hand experiences with WFW 3.11 under OS/2 2.1 immediately responded, stating that the Microsoft peer-to-peer networking software can run under OS/2 but that WFW 3.11's networking and advanced 32-bit features are disabled under it.

The user was confused, having seen IBM advertisements boasting of WFW 3.11 compatibility under OS/2 2.1 and Warp.

So we looked into the issue, checking out IBM's own technical notes in the OS2USER FORUM on CompuServe.

This investigation validated the user claims.

More specifically, we learned:

- The 32-bit disk access (32-BDA) and 32-bit file access (BFA) services in WFW 3.11 cannot be installed under OS/2 2.1 because these Win32 subsystems are configured by virtual device drivers (VXD).

Win16 applications that require VXDs cannot run under OS/2 2.1 or Warp either.

Therefore, if you use Windows applications that really fly under WFW 3.11 with 32-BDA and 32-BFA, you won't benefit under OS/2 or Warp.

- All networking features of WFW 3.11 are disabled under OS/2 2.1 and Warp.

These features include printer/disk sharing, remote access support and messaging.

To join in on the discussion about this issue, check into WINCON Section 5 under Peer Networking.

PICK OF THE WEEK

This week, our on-line staff has selected an electronic mail utility that will allow you to prepare binary files for transfer between Windows and other desktop systems over the Internet.

The shareware, from Sabasoft, Inc., is called Information Trasfer Professional (XFERPRO) 1.0.

XFERPRO is available on WINCON Library 11.

The utility handles encoding and unencoding of binary files, such as those including audio and video components, so that they can be mailed or read.

Files that are supported include, but are in no way limited to, those files with the following extensions: .EXE, .COM, .DAT, .WAV, .AVI, .DB, .DBF, .MDB, .ZIP, .ARC, .LZH and .ZOO.

XFERPRO uses the Multi-purpose Internet Mail Extension 1.0 standards for binary file messaging as well as other encoding/decoding standards.

The software supports the exchange of files not only over the Internet, but over a variety of value-added networks.

DAVE'S WORLD COMES TO WINCON

David Rorabaugh, who is one of WINCON's technical sysops and coauthor of the Windows Users Group Network's *Windows Connectivity Secrets* book, has announced a dedicated message in WINCON Section 21 called Dave's World.

Each week, Rorabaugh will post a short column on a subject related to Windows networking.

Last week, Rorabaugh posted a story about a group of corporate system developers discussing the creation of an internal style guide for application development.

Some felt that a consistent look and feel — right down to the color of title bars — was needed and that such standards should be hard-coded into applications.

Although, others disagreed — strongly.

Rorabaugh has posed a related follow-up question to the WINCON members: Should an application ever override the system settings as part of its style?

Join the discussion and share your opinions.

ATM TO THE DESKTOP

Fore adds PCs, Macintoshes to the ATM adapter card mix

BY MICHAEL CSENGER

Warrendale, Pa.

Fore Systems, Inc. today will bring Asynchronous Transfer Mode to corporate commoners with the announcement of personal computer and Macintosh-based desktop ATM adapter cards.

Fore's previous ATM adapters were targeted at high-powered workstations, while the new offerings work with even fairly modest PCs running Intel Corp. 486 processors. The adapters also are the first from Fore to support Category 5 unshielded twisted-pair wiring; previously Fore supported only fiber-optic connections.

The new adapters now provide Extended Industry Standard Architecture (EISA) and NuBus support for PCs and Macintoshes, respectively, and are called the ESA-200PC and the NBA-200 NuBus adapters. Fore is also developing a Peripheral Component Interconnect bus adapter, the PCA-200, and a MicroChannel bus PC adapter, the MCA-200PC, to ship early next year.

The company currently ships EISA and MicroChannel bus adapters for high-end workstations.

The new adapters with either Category 5 copper or fiber wiring will support throughput up to 155M bit/sec OC-3 speed. The cards handle all ATM segmentation and reassembly functions, and also implement other features such as LAN emulation.

While the cards are optimized for Fore's other ATM products, they are compatible with any standards-compliant gear.

Both Macintosh and PC users might have ATM needs in applications that involve large file transfers or image manipulation, among other things, said George Prodan, Fore's director of marketing for adapter cards. A 486-based PC properly configured can sustain about an 80M bit/sec data transfer rate, but raw bandwidth alone is not ATM's real benefit.

"100M bit/sec off a PC is not the issue," Prodan said. "Even at much slower speeds your performance is enhanced by the fact that there is not contention for shared media."

Adapter additions

Product	Platform	Pricing	Availability
ESA-200PC (copper interface)	EISA bus PCs	$1,595	1Q '95
ESA-200PC (fiber interface)	EISA bus PCs	$1,695	Now
NBA-200 (copper interface)	NuBus-based Macintosh	$1,795	1Q '95
NBA-200 (fiber interface)	NuBus-based Macintosh	$1,795	Now
PCA-200 (copper and fiber interface versions)	PCI-based PCs	Not available	1Q '95

GRAPHIC BY TERRI MITCHELL

Experts see a limited, focused need for ATM to the desktop. Gartner Group, Inc., a Stamford, Conn.-based consultancy, predicts that about 10% of desktop machines will be equipped with something other than an Ethernet or token-ring adapters next year.

Fore's new adapter cards cost $1,500 or more, far more than the $1,000-per-port threshold that many people have suggested for quick market acceptance. But Fore sees no pressure to reduce its price, as competitive offerings are not yet available.

Likewise, Fore's adapters now support proprietary LAN emulation, which will be upgraded to comply fully with the ATM Forum's final specifications by year end. LAN emulation allows underlying protocols such as IPX to be carried over ATM.

✆Fore: (412) 772-6600.

Whitetree

Continued from page 21

bit/sec [on the backbone] to [25M bit/sec] at the desktop," Lawrence said.

LAWRENCE

Whitetree expects to begin beta-testing its first products in early 1995. The Whitetree adapter card and switch ports will provide LAN emulation, so existing LAN applications can run over ATM unmodified.

"We're putting a lot of time into the ease of use," she said. "Our vision is to take it out of the box, plug it in and start running." Target customers are Ethernet users running out of bandwidth, she said.

"If there's a fair price difference between 25M bit/sec and 51M bit/sec ATM, people will go to 25," said Michael Howard, president of Infonetics Research, Inc. in San Jose. "There's no need for 100M-plus bit/sec for dedicated bandwidth on the desktop."

In fact, Howard added, customers may shun ATM51 products if 25M bit/sec adapters get standardized and on the market soon. "For many desktop applications, ATM25 is more than enough," he said.

Whitetree expects to distribute its products under its own label as well as through OEMs, value-added resellers and system integrators.

✆Whitetree: (415) 855-0850.

Arcada

Continued from page 21

"Windows NT is probably the biggest growth opportunity for all of the major backup product developers," said Rob Enderle, an analyst with Dataquest, Inc. in San Jose, Calif. "But some [aspects] of the competition [don't] have as much to do with the products as the relationship, and Arcada is tight with Microsoft. They'll have a part in whatever standard evolves."

Although Arcada has a built-in showcase for its product, other storage management developers are gearing up. Cheyenne Software Inc. of Roslyn Heights, N.Y., which introduced a Windows NT Agent Option for Cheyenne ARCserve in the summer, expects to ship by year end full support for Windows NT with a new version of ARCserve.

Also developing a backup program for Windows NT is Palindrome Corp., which provided a version of its Backup Director for the Workgroup bundled with Hewlett-Packard Co.'s new SureStore Tape 1200e.

Optical Technology Group, Inc. of Bethesda, Md., touts its support for optical drives and jukeboxes in DiskExtender 2.0, a mass storage management product now shipping for Windows NT networks.

"Backup Exec and ARCserve look very similar," Dataquest's Enderle said. Both provide hierarchical file management functions and security, and both vendors charge extra for automated library support. Arcada's advantage is in its bundling, Enderle noted.

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BRIEFS

Specialty retailer **Nordstrom, Inc.** last week said electronic mail users can shop its Seattle store from anywhere in the world, 24 hours a day, through a new service it calls the Nordstrom Personal Touch America. The service represents a collaboration among Nordstrom, **MCI Communications Corp.** and **ConnectSoft,** a maker of telecommunications software for accessing online information services.

E-mail users send a general message to Nordstrom about items they are seeking, and a shopping consultant E-mails the potential buyer back with information, thus striking up a dialogue. For personal computer and modem users not currently linked to any E-mail service, Nordstrom will offer a $25 package, including a customized version of ConnectSoft's E-Mail Connection software and MCI Mail services.

Nordstrom: (206) 628-2111; MCIMAIL: Nordstrom PT America; Internet: Nordstrom_PT_America@mcimail.com.

No more blocks of wireless telephone numbers under the special new **500 area code** are available, according to Bell Communications Research. As a result, the **Industry Numbering Committee** is considering assigning area codes 522, 533, 544 and so on for wireless, although 500 is expected to become the prestigious wireless handle.

Some 1,016 applications for blocks of 500 numbers were received, Bellcore said, but only 781 blocks are available. That's because each block is defined by the three-digit exchange following the area code (*NW,* June 13, page 6).

Bells flout collocation rules; CAPs complain

BY DAVID ROHDE

Washington, D.C.

If you have offices anywhere outside NYNEX Corp. or Pacific Bell territory and want to use a competitive access provider (CAP) for something other than straight private-line bypass, you might have a problem.

The other five regional Bell holding companies are proposing to charge their competitors grossly excessive prices to interconnect their nets at local central offices (CO). That's according to protests filed last week at the Federal Communications Commission by the CAPs, including new local exchange entrant MCI Communications Corp.

Under a new regulatory scheme adopted by the FCC in July under court pressure, the RBHCs no longer have to allow competitors to place switching equipment in their COs. Instead, under virtual collocation, the RBHCs own the switching equipment dedicated to use by the CAPs and charge the CAPs for services rendered under tariffs filed last month.

NYNEX and Pacific Bell have stated that they will continue to allow physical collocation. But the other five RBHCs — as well as GTE Telephone Operations and others — allegedly are making it economically difficult for CAPs to offer users competitive services by keeping virtual collocation charges artificially high.

For users, CO interconnection is required to build metropolitan-area networks through a CAP, which is unlikely to have ubiquitous CO switches.

"Keeping prices high interferes with competition," said Hank Levine, a partner in the Washington, D.C. law firm of Levine, Lagapa & Block.

The commission had specifically directed the Bell companies to offer rates comparable to physical collocation and keep them straightforward, attorneys for the CAPs said.

"It's pretty outrageous," said Andrew Lipman, senior vice president for government affairs at MFS Communications Company, Inc. "We expected gamesmanship [in the tariff filings], but I think in the case of some of the Bells, this is nothing short of disrespect for the commission itself."

Teleport Communications Group (TCG) said being limited to virtual collocation puts CAPs at a competitive disadvantage. "Physical collocation facilitates ease of maintenance," said Ross Johnson, director of product marketing at the firm. "And the RBHCs still have the facilities advantage they gained when they were a monopoly. We'll deal with virtual collocation, but we prefer physical."

In California, where TCG will continue to physically connect with Pacific Bell, TCG intends to launch switched business services such as Centrex and intra-local access and transport area toll services on Jan. 1, Johnson said.

NYNEX and Pacific Bell are staying out of the fight because they know physical collocation is the most efficient way of providing interconnection service, Lipman said.

Not only the traditional CAPs, but also MCI — which is trying to establish local exchange service through its MCI Metro subsidiary — weighed in with a petition to the FCC to suspend the tariffs.

"Virtual collocation should cost interconnectors less than physical collocation since there are several rate elements that do not apply," the company said in its petition. "Yet somehow, US WEST, Bell Atlantic and Southwestern Bell [now known as SBC Communications, Inc.] have proposed rates for virtual collocation arrangements that exceed their physical collocation rates by 56%, 135% and 269%, respectively."

Lipman ridiculed Bell Atlantic's proposed $64-per-month per DS1 charge for cross-connects — which are little more than jumper cables — to the LEC's main distribution frames.

Out on the street

Five of the seven RBHCs and GTE Telephone Operations said they will kick competitive access providers out of their central offices according to this schedule:

- **Ameritech** Dec. 31
- **GTE** Dec. 31
- **US WEST** Jan. 31, 1995
- **BellSouth** Feb. 2, 1995
- **Bell Atlantic** March 31, 1995
- **SBC** June 13, 1995

SOURCE: FCC TARIFFS

Senior Editor Joanie Wexler contributed to this story.

Foster care firm adopts split frame relay net

Service mix from UniSpan consortium and Sprint delivers big savings to user.

BY JOANIE WEXLER

Seattle

Three months ago, Jim Madden hedged his bets by building a frame relay network based on services from not one, but two, providers. So far, it looks like he's winning — to the tune of a 25% lower monthly bill and newfound net redundancy.

The senior network engineer at The Casey Family Program, a nationwide long-term foster care provider, replaced a 25-site network of dedicated 56K bit/sec lines from Sprint Corp. with 56K bit/sec frame relay permanent virtual circuits (PVC) from Sprint and UniSpan, a little-known consortium of six regional carriers.

The reason for the split: Madden was attracted to UniSpan's prices, which he calculated run about 20% lower than Sprint's, but he was leery of the consortium's relative anonymity.

Initially, there was a glitch in Hawaii involving the Network-to-Network Interface between local frame relay provider GTE Corp. and his UniSpan contact company, PacNet, Inc., which caused a two-month service delay.

Since then, though, "the network has run perfectly," he said, adding that he has found it easier to deal with PacNet than Sprint for technical consulting and support.

For example, Madden said PacNet is willing to look up a circuit number if he calls with a question. "With Sprint, I'd be dead in the water if I didn't know it," he said.

New and improved

With former Sprint DDS net	
Monthly cost:	$20,000
Redundancy:	None
With Sprint/UniSpan frame relay net	
Monthly cost:	$12,000
Redundancy:	Full; 2 PVCs from all sites to Seattle headquarters and Austin backup center

The Casey Family Program hopes to eventually increase savings even more by moving all of its circuits to UniSpan, whose services it says are about 20% cheaper than Sprint's.

Aside from the soft benefits, Casey has been able to afford a fully redundant network — with 56K bit/sec PVCs running from all locations to the company's headquarters here and disaster recovery center in Austin, Texas — while slashing its monthly bill (see graphic).

Before, Casey had no backup, Madden said, because the company could not afford a fully meshed leased-line network. Instead, sites were linked in a hierarchical, hub-and-spoke configuration.

Madden stumbled upon UniSpan after he issued bids for frame relay services with several of the usual suspects — MCI Communications Corp., Sprint and WilTel. A third-party equipment vendor told him about PacNet, a regional frame relay service provider in the Pacific Northwest and a UniSpan member.

"We could have gone entirely with PacNet and saved even more money, but we didn't know them," Madden said. "We figured we'd give them a chance, and if

See **Frame relay**, *page 33*

Resold private lines not always a sweet deal

BY DAVID ROHDE

Spokane, Wash.

Long-distance services offered by resellers of high-volume arrangements, such as AT&T's Tariff 12, are usually a great deal for businesses that may not qualify for big discounts on their own.

But that may not be true if you get interstate circuits as part of a deal to outsource your entire network, as Leslie Green found out the hard way.

Green, a telecommunications analyst at Washington Water Power Co., assumed that the AT&T T-1 private line between her company headquarters here and an EDS Corp. data center in Sacramento, Calif., was offered at a huge discount.

That's because, as an EDS systems integration customer, Washington Water Power got the dedicated circuit from EDS under EDS' policy of reselling features in its AT&T Tariff 12 option to its own customers.

But when Green checked the regular AT&T private-line pricing following the publication of the rates (*NW,* Aug. 8, page 21), she found out that the line costs were almost the same as AT&T would have charged

See **Deal**, *page 32*

FACSIMILE SERVICE

MCI's OneFAX may trim international delivery expenses

BY BILL BURCH

Washington, D.C.

An international fax delivery service MCI Communications Corp. plans to launch in the first quarter of next year should mean users will spend less time huddled over fax machines trying to get transmissions to go through.

With OneFAX, users will fax a document to MCI via an 800 number, and the carrier will then try to deliver the fax to its final destination. If the fax goes through, the carrier notifies the sender within two minutes. For faxes that encounter problems, MCI will make multiple attempts to send for up to an hour and notify the sender of the situation.

Those problem calls are where OneFAX could save users money. International calls have high charges for the first few minutes, so wrong numbers and failed modem handshakes can rack up charges quickly. With MCI's service, users are only charged for fax transmissions that go through.

Pricing for the service is still up in the air, but MCI is considering offering it at no charge, according to Jose Blanco, a senior manager with MCI Business Markets.

Even though more than 80% of faxes are delivered on the first try, those that do not make it can be frustrating for users, Blanco said. "It's not the ones that go through that cost you the time and the trouble, it's the ones that don't go through," he said.

For international calls, fax machines are frequently programmed to send in the middle of the night to take advantage of lower calling rates. If users program their fax machines to try a number six times, failed calls can add up, Blanco said. "That can cost you a boatload if you're calling China, for example," he said.

Fax machines today are smart enough to eliminate some of the problems, according to Mike Armstrong, a vice president of product planning with Pitney Bowes, Inc., one of the largest domestic fax machine providers. For example, most machines today do not pick up when they're out of paper, he said.

Most fax transmission glitches are due to operator errors, those that could be eliminated with OneFAX, Armstrong said.

"What this protects you against is a wrong phone number," he said. "Depending on how your machine is set up, you can get into loops where you're waking someone up in Japan repeatedly."

The trade-off with fax delivery services can be slower transmission rates, Armstrong said. Most services send at a lowest common denominator rate of 9.6K bit/sec, which translates into five pages that take around 4 minutes to transmit.

Most fax machines feature proprietary protocols that allow for 14.4K bit/sec transmission rates, which can move five pages across in a minute, he added.

✆MCI: (404) 668-6000.

Deal

Continued from page 31

her directly.

The hydroelectric utility is paying EDS $3,700 a month for the T-1 line plus a couple of additional 56K bit/sec circuits, Green explained. Under typical AT&T rates, the T-1 costs $2,843 a month, while each 56K bit/sec circuit costs just a little more than $500 a month, according to tariff analysts, for a total of about $3,850. EDS, however, pays far less than half AT&T's regular rates.

"EDS doesn't sell itself as a competitive reseller," said Hank Levine, a partner in the Washington, D.C. law firm Levine, Lagapa & Block. "Outsourcing [to a company like EDS] does not save you a lot of money."

OPTION 24 AN OPTION?

Things might be different if an independent reseller with access to EDS' Tariff 12 deal — known as Option 24 — was reselling the private lines, Levine said.

"If Option 24 was put out in the wholesale market, it would be much lower," he said.

Green said she could try this option: "We checked our contract, and there is nothing that says we have to get [the T-1 circuit] through EDS," she said.

In fact, a wholesaler represented by Levine — Public Service Enterprises of Pennsylvania (PSE) — has a formal complaint on file with the Federal Communications Commission that attempts to force AT&T to give PSE access to Option 24. A draft resolution of the formal complaint is circulating among FCC Common Carrier Bureau officials, Levine said.

But even if the utility was to go out and strike a separate, non-EDS deal, Levine suggested that the outsourcer will charge a central office connection or access coordination fee to hook up the private line.

"If you go out to bid, you'll be astonished to learn that the [connection] price will be the same as the difference between their price and the regular AT&T price," he said.

Green has one other option remaining because Washington Water Power used to own a common carrier called Northwest Communications that has since been purchased by LDDS Communications, Inc.

The utility is thinking of buying the T-1 from LDDS. If it does, it will lose the AT&T facility but will assure itself of a lower rate because savings from a second-tier carrier would far more than offset any extra fees.

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Frame relay

Continued from page 31

they turned out to be good, we'd put more circuits on them later."

There are other, perhaps more foolproof, ways to gain comfort with new market entrants, said Christine Heckart, senior consultant with TeleChoice, Inc., a consultancy in Verona, N.J.

"There isn't an unknown out there not willing to give you a couple months of trial service," she said. "You can engineer emergencies and get a very good feel for the support you'd get without having to go into a production network."

She pointed out that users lose economies of scale and connectivity advantages while increasing administration and overhead when dealing with two carriers.

Seven of Casey's 25 sites are serviced by UniSpan members, which include EMI Communications Corp., Insinc, Intermedia Communications of Florida, Inc. and MRC, Inc. The carriers work together to give customers, in effect, a nationwide frame relay service.

So far, PacNet and Intermedia Communications are the UniSpan members providing service to Casey, according to Jerry Cady, vice president of advanced services at PacNet.

But all Madden knows is he deals with a firm named PacNet. "We called a single person in Seattle, and they put together the whole thing," he said.

RATE & TARIFF MONITOR

by Eric Paulak

1-800-CALL-INFO goes too far

1-800-COLLECT was a marketing coup for MCI. It took an overlooked service — collect calling — that AT&T controlled and turned it on its head, saving callers money and earning MCI a bundle at the same time.

But now the carrier has gone too far.

In a new attempt to take over an AT&T-controlled fringe market — long-distance directory assistance — MCI has launched its potentially misleading 1-800-CALL-INFO service.

The national directory service does offer some benefits over standard directory service — it gives you two numbers for the price of one — but there's some question as to how accurate the service is, plus it could ultimately cost businesses more. In addition, 1-800-CALL-INFO gives all the appearances of an 800 pay-per-call number, which requires presubscription and up-front rate disclosure. However, MCI claims its service is exempt from such regulation.

Not everyone agrees. AT&T, for example, filed a formal complaint with the FCC last week that charging for 800 calls is illegal.

The way 1-800-CALL-INFO works is that a caller dials the number — 1-800-225-5463 — and gives the operator a city and state or country, along with the person's name. Callers are allowed to get two numbers with each call for 75 cents, compared to 75 cents per number with standard directory assistance. That charge is then billed back on your local bill.

After getting the numbers, you also get the option of having your call placed over MCI's network and billed at MCI's Residential Dial 1 or international Direct Distance Dial rates.

If you're an MCI residential customer, this is a good deal. The calls count toward any savings plan you have, and you get two directory assistance numbers for the price of one.

But if you're a business user, you would get hit with the 75-cent charge no matter what directory assistance service someone called. But with the option to have the call placed at MCI's Residential Dial 1 rates, you'll end up with callers bypassing your cheaper business rates.

How much could it cost you? MCI's Residential Dial 1 rates are 22.99 cents to 32.99 cents per minute, depending on mileage, whereas its most expensive Vnet rates are 20.3 cents to 26.2 cents per minute, also depending on mileage. MCI says it will eventually make 1-800-CALL-INFO part of its business services but won't say when.

And while you're paying the higher rates, you may not even be getting the right phone numbers. When checking out the service, I asked for numbers for two people — one in Omaha and one in Shepherdstown, W.Va. — both of whom moved to new locations about six months ago. MCI's operators gave me their old numbers, while calls to the usual 555-1212 operator yielded the correct numbers.

About a dozen subscribers to an Internet mailing list called the Telecom Digest had the same problem.

MCI has its own proprietary database of phone numbers that it uses, and the carrier admits that there may be a few errors. But it claims that as the service matures, the number of errors will be reduced. In the meantime, if MCI does give you a wrong number, you can get the 75 cents credited back to you.

To avoid getting hit with these charges, you have two options; you can block (800) 225-5463 in your PBX or you can have MCI screen the call for you. To have the calls screened, you have to call MCI at (800) 677-6580 or fax a list of phone numbers on company letterhead that you want screened to (904) 857-4079.

With the screening service, users could call from your business, but they would have to bill it to a credit card or a third party.

Paulak is associate publisher for the Center for Communications Management Information in Rockville, Md., a provider of rate and tariff information. He can be reached at (301) 816-8950, Ext. 327.

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CLIENT/SERVER APPLICATIONS

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BRIEFS

Software 2000, Inc. of Hyannis, Mass., last week announced a new line of **human resources** client/server application software based on an object-oriented framework. Infinium: HR, to be released by year end, will connect Windows and OS/2 clients to Application System/400 servers running DB2/400 and provide a choice of a graphical user interface or character-based interfaces, as well as viewers for decision-support applications. The company is planning a line of Unix-based servers for the software, as well. Next year, Software 2000 plans to release new versions of its financial and materials management software based on the new object-oriented architecture.

Pricing will be announced later.

Software 2000: (508) 778-2000.

As expected, **Lotus Development Corp.** last week announced it will bundle its **Notes groupware** product with its SmartSuite set of desktop applications for Windows (*NW*, Oct. 17, page 1). Called NotesSuite, the bundle will be released later this month and will include several additional applications that integrate the capabilities of both packages. These include contact management, document distribution and news retrieval applications.

In quantities of 100, pricing will start at about $499 per user.

Lotus: (617) 577-8500.

Russell Information Sciences, Inc. of Laguna Hills, Calif., last week announced it had added support for Novell, Inc. servers to its **calendaring software.** Calendar Manager 5.0 now supports NetWare 3.11 servers. This is in addition to the company's existing Digital Equipment Corp. VAX/VMS support. Windows and Macintosh clients are available.

Pricing starts at $995 per server and $58 per client license with an order of 1,000 clients.

Russell: (714) 362-4000.

Open Data Corp. of Lexington, Mass., last week slashed prices for its FindOut **data access and modeling tools.** Pricing for both FindOut and FindOut Builder is affected: FindOut is now selling for $595 per license, compared to $995 previously, and FindOut Builder is selling for $2,995, down from $4,995.

FindOut, available for Windows and OS/2 clients, lets end users query back-end relational databases without learning SQL. FindOut Builder, available on the same platforms, is a tool for building decision-support applications.

Open Data: (617) 860-8300.

The Mesa Group, Inc. last week announced Version 1.1 of its Conference+ **conferencing application.** The new version will let users replicate Conference+ discussions via electronic mail across Hewlett-Packard Co. OpenMail, AT&T EasyLink and Banyan Systems, Inc. VINES E-mail systems. Mesa has also added application program interfaces to let users access Conference+'s message store from Visual Basic applications.

Pricing starts at $1,500 for 20 users.

Mesa: (617) 964-7400.

Analyzer sniffs out Oracle DBMS troubles

BY BARB COLE

Menlo Park, Calif.

Network General Corp. will announce this week enhancements that enable its network analyzers to troubleshoot Oracle Corp. databases.

One enhancement is software that enables Network General's Expert Sniffer Analyzer and Distributed Sniffer Systems to capture and decode traffic from Oracle7 databases to help identify the source of problems like poor performance. A separate piece of software, known as expert analysis, works with the Sniffer to alert administrators of bottlenecks in Oracle7 databases.

The Sniffer software will help users pinpoint whether problems are originating in the client application, the network, the server or the database, Network General said.

Information about the Oracle7 databases will be presented via the SniffMaster Windows front-end application.

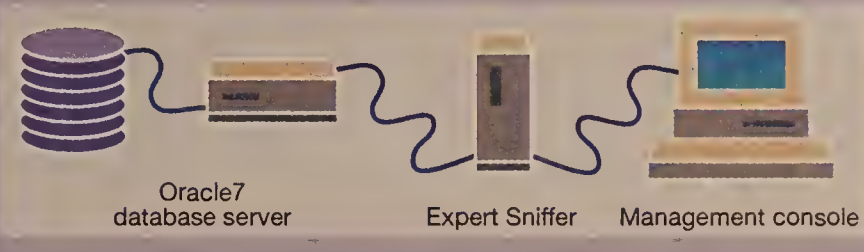
The decodes will be administrators used to troubleshoot problems as they arise, while the expert software will run on the Sniffer at all times and notify administrators when bottlenecks appear.

Both components will be available by the second half of 1995, the company said.

"You can see a lot more of what's going on between client applications and databases," said Jim Johnson, a technical services manager at Intercon Associates, Inc. in Rochester, N.Y. Johnson used a prototype of the decoder software to track down the source of some performance problems with an Oracle7-based application.

Database diagnosis

Network General's Sniffer is being enhanced to decode database traffic, analyze it and forward the results to a management console.



GRAPHIC BY TERRI MITCHELL

"Without it, we could have used a protocol analyzer for [Novell, Inc.] NetWare or TCP/IP, but it wouldn't have been Oracle7-specific and would have taken longer to find the problem," Johnson said.

Network General said the decodes could also be used to determine if encryption fields are on or off and if client applications are connected to the right server.

Pricing for the expert analysis component was not available, but Network General said it will probably include the decodes with its Sniffer systems at no extra charge.

The announcement is part of a broad push by Oracle to get management tool vendors to address Oracle databases. Network General declined to comment as to whether it's working with other database companies.

Analysts said the announcement was an important move toward integrating network and database management.

"Everybody wants to figure out how to make applications run better on a net. This is the first step toward doing that," said Val Sribar, an analyst at META Group, Inc. in Reston, Va.

✆Network General: (415) 473-2000.

Conflicting laws and policies put E-mail manager in a bind

BY ADAM GAFFIN

Washington, D.C.

At Fluor Daniel, Inc., a worldwide engineering firm, the policy for storing electronic mail is fairly straightforward, and strict: No messages get kept for more than two months.

The company instituted the policy after being sued by a fired senior executive who, as part of the suit, demanded all copies of every E-mail message sent over the corporate cc:Mail net during a specified period.

But now that policy, intended to protect the firm in the event of future lawsuits, could run into conflict with federal regulations relating to E-mail sent to or by federal contractors. Regulations now under development by the National Archives and Records Administration will require federal agencies to permanently archive E-mail messages of potential historical importance. Federal agencies, in turn, are beginning to require government contractors to establish similar policies.

Fluor Daniel's E-mail profile

Number of post offices: **137**

Number of users: **20,000 in 35 countries**

Size of average E-mail message: **82K bytes**

Total amount of WAN E-mail traffic per month: **65G bytes**

Total amount of WAN E-mail traffic per year: **787.2G bytes**

The changes are the result of rulings in a suit brought by several public-policy groups in the waning days of the Reagan administration over the disposition of copies of E-mail messages sent by Oliver North and other Iran-Contra figures.

The National Archives and Records Administration is currently developing guidelines for determining which E-mail messages get stored, said James Hastings, director of the records appraisal and disposition division.

Hastings estimated that only 5% to 10% of all messages generated by government employees will be worthy of permanent ar-chiving. But even that requirement would cause massive headaches at Greenville, S.C.-based Fluor Daniel, said Bill Wyatt, the company's global network E-mail administrator.

The firm does considerable consulting work for federal agencies, such as the Department of Energy and the

See **E-mail**, *page 38*

MIDDLEWARE

Microsoft to license ODBC and test kit

BY BARB COLE

Redmond, Wash.

Microsoft Corp. last week said it will license its Open Database Connectivity (ODBC) technology and software to test ODBC drivers to a company that will port the middleware to Unix and the Macintosh.

Visigenic Software, Inc. plans to deliver a software developers' kit for ODBC on Unix later this month and one for the Macintosh in the second quarter of 1995.

Microsoft will continue to develop and sell the software developers' kit for ODBC on Windows.

ODBC is the Microsoft-developed protocol for accessing multiple databases from front-end applications.

Users saw some promise in being able to implement the technology across platforms.

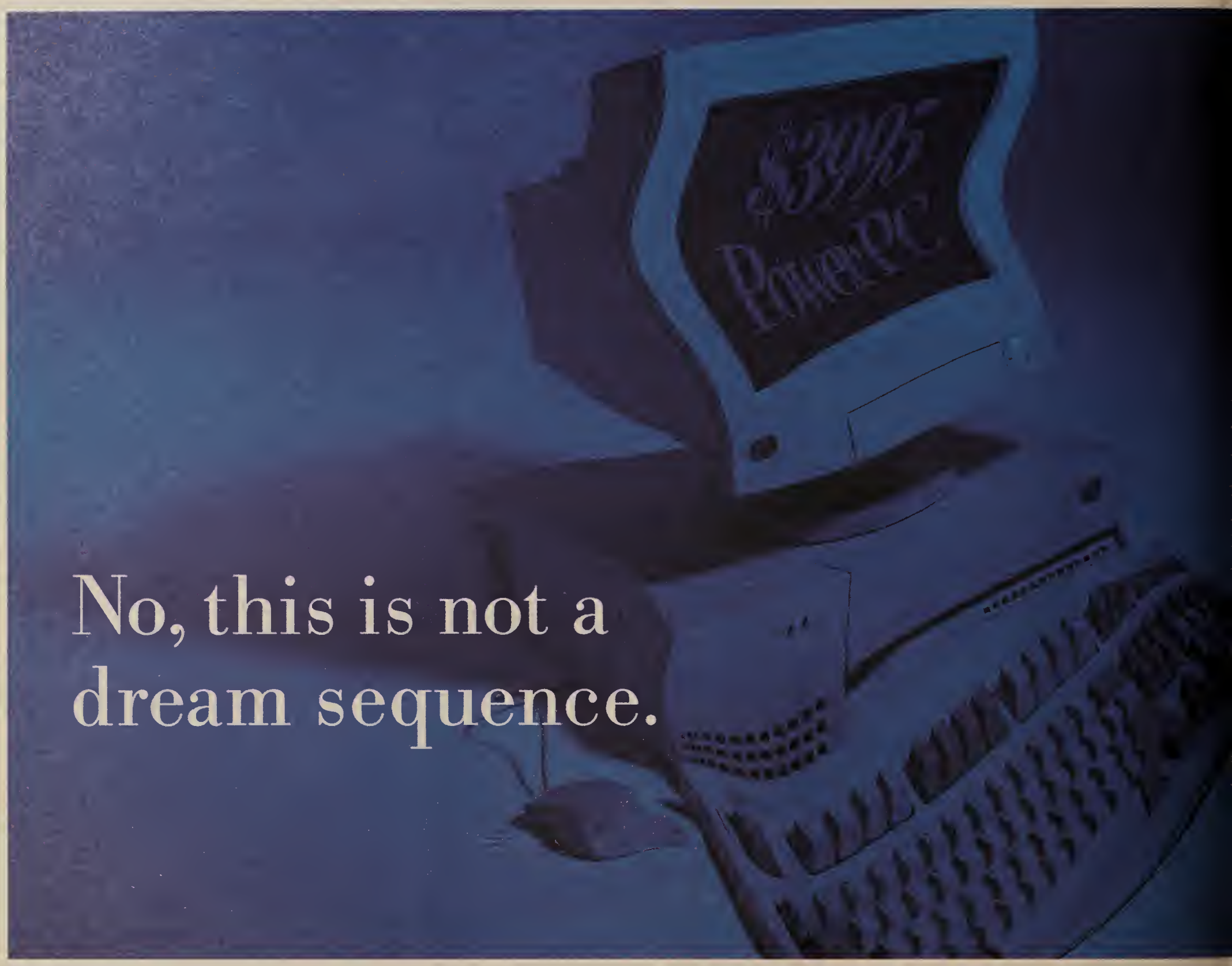
"I think the Macintosh version of ODBC will be useful, but I'm not sure how much of a demand there is for ODBC on Unix," said Casey Hopson, a database developer at a telephone company in the Northeast.

Visigenic said several driver developers have licensed the beta version of the ODBC developers' kit

Putting ODBC to the test

Visigenic's ODBC test suites do not currently rate driver performance, but future versions will include performance statistics.

See **ODBC**, *page 39*



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Notes-Internet connectivity software begins to emerge

BY ADAM GAFFIN

Arlington, Va.

Corporate Software Integration Services, Inc. will soon roll out software to let users update Lotus Development Corp. Notes databases via the Internet.

The server-based software, still unnamed, will link World-Wide Web (WWW) clients to Notes. It is among a new wave of applications coming to market aimed at stitching together Notes and Internet users.

Lotus itself has a team working on a project, code-named InterNotes, for putting Notes servers on the Internet.

Both the WWW and Notes provide a graphical user interface, a way to combine several data types into a single document, and hyperlinks for connecting related documents.

Notes has become a best-seller, but the number of copies shipped is dwarfed by the number of Mosaic copies and other WWW clients that have been downloaded from the Internet or that are being incorporated into commercial offerings.

A link between the two systems could prove useful for companies seeking to distribute or sell information stored in Notes, said Richard Truex, director of technology for the Pulitzer Publishing Co.'s Pulitzer Technologies division in St. Louis.

In addition to rolling out the new WWW client-to-Notes software, Corporate Software already offers an application called Web Link for converting Notes documents into WWW format. Web Link comes in client and server versions and is sold as part of a consulting or systems integration deal. The application starts at about $10,000.

The client version lets a user convert Notes documents into WWW documents in bulk. Any Notes document links — and the documents they point to — are converted into the WWW equivalent, said David Gonzalez, sales manager at Corporate Software. The server version allows for scheduled conversions so that, for example, a company could update a WWW database on a regular basis, he added.

The new software will let WWW users update Notes databases by filling out on-line WWW forms.

There are a series of other efforts under way by vendors to give Notes users access to Internet services.

Earlier this month, Wolf Communication Co. began offering users of its Notes-based WorldCom service WWW access via software that essentially lets them mail in requests for files and documents via a Notes interface.

WorldCom lets Notes users participate in Usenet conferences, as well.

Corporate Software and Jsoft, Inc. also sell translation software for linking Usenet and Notes.

✆Corporate Software: (703) 522-0820.

Linking Notes to the Internet

Company Product	Description	Availability
Corporate Software Web Link	Converts Notes documents to WWW format.	Now
Jsoft Usenet-to-Notes gateway	Lets Notes users participate in Usenet.	Now
Lotus InterNotes	Tool kit for giving Notes users access to the Internet and Internet users access to Notes databases.	Not announced
Wolf Communications WWW for Notes and FTP for Notes	Let users grab WWW documents and FTP files, respectively, via Notes forms on Wolf's WorldCom service.	Now

GRAPHIC BY SUSAN J. CHAMPENY

Obstacles remain in making groupware a worthwhile path

BY ELIZABETH HEICHLER

London

While software vendors clamor to redefine their applications as groupware and climb aboard the marketing juggernaut driven by Lotus Development Corp. Notes, some industry analysts warn that the buzzword may still be a solution looking for a problem.

Groupware's success, they pointed out, also depends on technology that remains to be tested in production corporate networks.

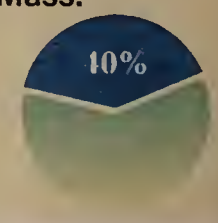
However, all agreed that groupware's time has come. With the installed personal computer and LAN infrastructure having reached a critical mass, collaborative applications offer a way for users to earn a return on their investments. And vendors are eager to cash in.

"The IT industry desperately needs a new growth market, and groupware is very much the white knight coming over the horizon," said Ian Meikeljohn, an analyst with Business Intelligence in London.

The emergence of messaging server technology that provides much of the infrastructure needed for integrating groupware applications may help the market take off, said Laurent Lachal, an analyst at London-based market research firm Ovum, Ltd.

However, the key products in this area — Lotus' Lotus Communications Server and Microsoft Corp.'s Enterprise Messaging Server — have yet to make their debut.

Most Lotus Notes users are reporting returns on investment of 40% or more, according to a recent study by International Data Corp. in Framingham, Mass.



"As a marketing buzzword, groupware has been stretched and abused," Meikeljohn said. "It's not an applicatio; it's more like a tool kit or development environment for building applications that can be quite different from one another."

Groupware can be a solution looking for a problem, he argued: Corporations may buy tens of thousands of copies of Lotus Notes, but unless someone in the organization has identified a problem and is using Notes to develop a solution, the company is unlikely to see much return on this investment.

The major growth areas for groupware will be in document management, workflow and Notes-like shared databases, according to Meikeljohn. He also sees a blurring of the product category's boundaries, with messaging increasingly becoming an infrastructure service provided by operating systems, and many groupware features becoming available in other products such as financial reporting systems.

Holding back the groupware market, Meikeljohn said, are immature products and vendors that come from the personal productivity marketplace with little corporate application experience.

In addition, groupware products are based on new technologies that are expensive to migrate to and they tend to integrate poorly with legacy systems, he said.

Groupware is also tough to manage, Lachal said. "But these are problems with the client/server technology upon which most groupware is based," he said.

➸ Heichler is European correspondent for IDG News Service.

E-mail

Continued from page 35

Army Corps of Engineers.

Some 20,000 employees in 35 countries communicate via cc:Mail, which has a client-based file server architecture. By itself, this makes it difficult to segregate messages that might fall under the guidelines, Wyatt said at the Electronic Messaging Association's recent Leadership Conference.

"The fact is, we cannot define between one message and the next," he said.

Equally important, once a message is sent from one post office to another, or to the outside world, it essentially disappears, unless the sender keeps a copy on his hard drive. And, every month, each cc:Mail client runs a "janitor" program to sweep out messages that are more than two months old.

So one alternative for complying with federal dictates would be to create a data warehouse to store every single message sent over the network. But employees now generate some 787G bytes worth of messages a year — and that is just for messages sent over the corporate WAN. Messages that stay on a single post office file server could represent three times as many bytes, Wyatt said.

Not only would that be very expensive, it could expose the company to the kind of legal risk it is trying to minimize with its current practices; some federal contracts run as long as 10 years, he said.

Wyatt said another possibility would be to set up servers for specific federal contracts. Any employees working on the contracts would have to then send copies of all contract-related messages to that server. He said the company did this with an earlier Energy Department contract and that it was still expensive and cumbersome.

Hastings, who spoke on the same panel, said he found this very interesting. "Clearly, you are being much more diligent about record keeping than the government itself," he said. "We have been trying to work with the Department of Energy for years to get them to have a basic record keeping system."

APPLICATION DEVELOPMENT

Software AG to expand its client/server presence

BY KEVIN FOGARTY

Software AG of North America, Inc. last week announced a set of extensions that will make its Natural application development language object-oriented, give it a graphical user interface (GUI) and improve its ability to access databases across a network.

Software AG's Natural New Dimension tools will let users convert character-based applications developed using Natural into more graphical, flexible applications. It will also help them port host-based Natural applications to client/server-based applications.

NATURAL TOOLS

The tools, which begin shipping next month, will be integrated in to future versions of Natural. They are designed to let users develop client/server applications with event-driven GUIs for Windows and IBM OS/2 workstations.

Event-driven applications respond to screen-driven commands such as mouse clicks, rather than following a fixed code sequence, said Scott Billings, marketing manager for application development tools for Software AG.

In addition to giving users the ability to stick a GUI on an existing client/server application, Natural New Dimension includes support for Microsoft Corp.'s Open Database Connectivity specification and for Software AG's proprietary remote procedure calls (RPC).

Future versions of Natural will support the Open Software Foundation, Inc.'s Distributed Computing Environment RPCs, Billings said.

The new product gives corporate developers the option of building event-driven GUI applications, traditional procedural applications with GUIs or a character-based interface.

Natural applications can be compiled to run on Windows, OS/2, various flavors of Unix, Digital Equipment Corp.'s OpenVMS, IBM's VM/CMS and MVS.

Natural New Dimension will run on Windows, OS/2 and Motif clients. The software costs $1,250 per user for the Windows version, which will be available next month. The OS/2 version will ship in December and the Motif version early next year. Prices were not available.

The company also plans to release object-oriented versions of Natural and the Natural Engineering WorkBench analysis and design tool by the second half of 1995.

Software AG will also release a compiler that can regenerate as object-oriented code those Natural applications created with the company's application generation product.

✆Software AG: (703) 860-5050.

Users to spend big bucks on client/server training

BY BARB COLE

Cambridge, Mass.

Most corporate developers are lacking in client/server know-how, which means that companies will spend a bundle in the next few years to retrain them.

"We've budgeted a good deal of money to get [mainframe] developers trained on reporting tools and graphical development tools, and that's just part of it," said Jim Gillespie, database administrator at Telephone and Data Systems, Inc. (TDS), a telecommunications firm in Madison, Wis. "Then we have to change their mind-sets so they start paying attention to how the applications they build affect the net."

GETTING UP TO SPEED

TDS is among a growing number of corporations that plan to increase the amount of money they spend to get developers up to speed on client/server computing. A recent report by Forrester Research, Inc. shows that 66% of corporations expect developer training expenses to rise rapidly during the next two years.

"Large companies just don't have the development skills they need, so they're retraining," said Heidi Dix, an analyst at Forrester and author of the report.

Bringing in new developer talent is not an option for most companies because "there just aren't enough client/server geniuses out there right now," she said.

Forrester estimated that out-of-pocket training costs will approach $1.8 million for an organization with 200 developers. Maintaining those hard-earned new skills will cost about $730,000 a year, according to the report.

"Training on the network end is where the biggest costs are," said Spencer Lyman, lead analyst at the University of Phoenix.

"Whether you're designing the application to run on the mainframe or putting a graphical front end on it for the PC, it's not that big a deal," he said. "What's killing us is teaching people how to size the network to support the applications."

Such networking lessons are learned by building prototype applications and by trial and error, Lyman added.

Kitty Weaver, system administrator at the National Center for Atmospheric Research in Boulder, Colo., said client/server application development training requires a bigger emphasis on application analysis and design than did training for host-based application development.

The Forrester report, which was based on interviews with 50 large companies, finds that only 44% of developers had received any type of client/server training.

Users said that most training dollars are spent on learning to use specific application development tools. What's needed is education on designing client/server applications that perform well across nets, they said. In the meantime, firms need to deal with the pain of developers devoting less time and attention to old applications, Dix said.

The Forrester report suggests a three-pronged approach for dealing with increasing client/server training demands: make sure everybody understands that training is essential; balance resources so that immediate business needs are met while developers are trained; and consider outsourcing.

ODBC

Continued from page 35

on Unix. The drivers in development will provide access to more than a dozen data sources, the company said.

The ODBC driver testing software was previously used internally at Microsoft to test their own ODBC drivers. Under the agreement, Visigenic, a San Mateo, Calif.-based maker of ODBC drivers, will offer the test software for Windows, Unix and Macintosh.

The software will be used by developers to ensure that ODBC drivers support particular back-end data sources and can retrieve data from those sources, Microsoft said. The software does not test the performance of ODBC drivers, which many users have said are too slow for mission-critical data access.

Hopson said he has mixed feelings about ODBC driver certification. "The real problem with ODBC drivers has been performance, not conformity. People just don't seem to be able to make ODBC perform," he said.

Betsy Burton, an analyst at Gartner Group, Inc. in San Jose, Calif., had a somewhat different view. "One of the problems with ODBC was that there were no [conformance] test suites for drivers. This testing software will take care of the consistency issue, but not the performance issues," she said.

Available now, the ODBC driver testing software will cost $25,000.

The ODBC software developers' kit for Unix, which is available now, costs $995. Pricing for the ODBC kit for the Macintosh was not available.

✆Visigenic: (415) 286-1900.

Comments?

See "How to reach us" on the back page.

EDITORIAL

A progress report

When IBM announced its System/390 Parallel Transaction Servers in April, I questioned the positioning of these revamped mainframes as servers for distributed applications.

Last week, I explored those issues with Nick Donofrio and key staffers at IBM's Large Scale Computing Division (LSCD). Donofrio, who heads up LSCD, may have the toughest job in the business. Not only is he responsible for driving a huge piece of IBM's revenue, he's overseeing a major technological migration aimed at winning a key role for mainframes in client/server nets.

After a rough start, Donofrio's efforts seem to be paying off. The division is running flat out to meet customer demand, and the revenue picture is more rosy than in years past.

Donofrio acknowledges that LSCD's growth is being driven by the improving economy and pent-up demand from customers outstripping the capacity of existing mainframes. But he asserts demand is also fueled by customers targeting new applications to the big iron. And that's the key to long-term success.

If IBM can convince customers that S/390s are the right platforms for new distributed applications — and not just big data repositories and hard-core transaction processing applications — there is a promising future for the boxes. If not, replacements and upgrades will only take the division so far.

IBM has taken some big strides in positioning S/390 for this server role, and, as you'll see in our news section, LSCD is working on products that could make it easier to integrate the machines into client/server environments.

Among other things, LSCD is making progress toward its goal of opening up the MVS operating system to support Unix applications. It has announced object support for MVS as well as programming and portability aids that will let applications developed in the LAN environment run on S/390 boxes. LSCD is also at work on an integrated LAN adapter that could reduce net complexity.

All of that is good news for customers trying to break down the walls between traditional computing and client/server environments. There is, however, plenty of work ahead. LSCD has reduced what it calls overall computing costs through architectural changes and new software licensing policies, but the price tag for the S/390s and associated systems software is high. That's a big issue for budget-strapped customers.

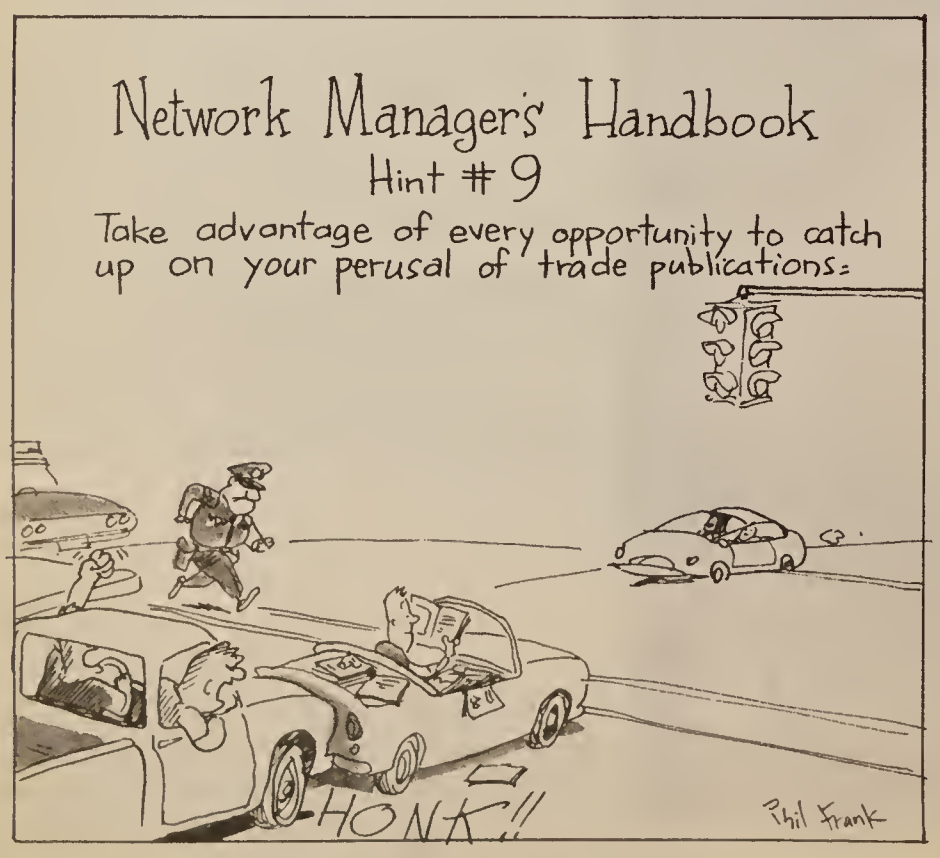
LSCD also can't do it alone. It's relying on other IBM divisions to succeed with network and systems/network management initiatives that are key to securing the mainframe's position in collaborative computing.

But LSCD's strategy is grounded in the concerns of real customers who know mainframes aren't easily dismissed. The hard work of executing the strategy is under way. If Donofrio and company can pull it off, this strong year may be just the beginning of a resurgence for big iron. This story, which seemed to be written in red ink just a year or so ago, isn't over yet.

JOHN GALLANT jgallant@world.std.com

TELETOONS

FRANK AND TROISE



NETWORK CONVERGENCE

by Mary Johnston Turner

Interface will be key factor in buying network services

MCI Communications Corp.'s recent introduction of networkMCI Business marks another milestone in the convergence of public networks and corporate computing architectures. The offering is a comprehensive Windows for PC interface to electronic mail, fax, videoconferencing, on-line information services, on-line catalog shopping and Internet access. While numerous other companies offer some or all of these services, MCI is the first major interexchange carrier to pull them together into one package.

If successful, networkMCI Business will become one of the first brand-name interfaces to use a desktop application to draw users into purchasing network services. In so doing, networkMCI Business and similar products will revolutionize the way we buy network services. Subscribers will begin to evaluate graphics, search engines, information databases and desktop application technical support when shopping for network services. Error rates, node-to-node throughput and provisioning intervals will all be low-priority evaluation criteria compared to the brand-name interface and navigation tools.

This paradigm shift — buying network services based on the quality and attractiveness of the interface rather than on the price or performance of the underlying service, be it frame relay, ISDN or switched voice and data — has the potential to dramatically alter who participates in making corporate telecommunications buying decisions.

Today, end users of voice, data and video services largely rely on their organization's telecommunications and information technology groups to identify, negotiate, purchase and maintain transmission and switching services from the various carriers. Telecommunications groups spend significant time and energy assessing technologies and making investment decisions. However, they generally have little or no say in what applications run on top of these network services. In fact, telecommunications managers routinely complain about new client/server applications that appear out of nowhere and create noticeably negative impacts on the network. As providers of a communications utility, the telecommunications group (whether they like it or not) must support whatever applications the end users need.

However, introduce packages like networkMCI Business, NetworkNotes from AT&T or Mosaic Internet interfaces and the buying decision begins to change. End users feel much more strongly about the look, feel and functionality of the desktop interface they must use every day than they do about underlying net technology and services. As brand-name desktop interfaces become more and more intelligent, end users will develop very strong opinions and preferences. Brand-name search agents associated with each carrier's interface, for example, are likely to have unique nuances that will differentiate one from another.

Corporate network planners are likely to see end users coming to them demanding this or that interface. The requested interface may indeed work with many carriers' services, but will work best with the network services provided by the same company that offers the interface. Pressure to purchase from multiple carriers (in order to give everyone access to the interface and information services of their choice) could undermine the discounts negotiated under many bulk service agreements, leading to major disagreements between the central telecommunications groups and the end users.

The brand-name interface or brand-name information search agent may quickly become a major evaluation criterion for network service purchases. If this is the case, the way that services are specified, evaluated and procured will need to become a much more inclusive process, involving ongoing input from end users across most business units and application environments, than many corporate telecommunications groups use today. More than ever, there will be a need for a consensus approach that is shared by the telecommunications group and the business end users.

My company has been working with Fortune 500 companies on this issue of building network architecture consensus across technology and business organizations for some time. We have found that it requires a whole new approach to planning and a much tighter linkage of net and information architectures to business drivers than ever before. It also requires more attention at more senior levels of the organization than ever before. It requires a mutual understanding of business strategy and drivers and a shared vision of what they mean for network investments. Only after these factors have been well articulated can technology decisions be made.

The networkMCI Business offering is but one of the first in what is sure to be a tidal wave of carriers attempting to sell directly to, and build brand loyalty among, corporate end users. Telecommunications planners need to move now to build a constructive dialog with end users so that decisions about information and network service interfaces can be made in a rational, architected manner. Without this type of planning, it is inevitable that the purchase of information and network service interfaces will be as fragmented as LAN and E-mail investments were in the early days, when they were largely departmental decisions. Many companies are still paying the price for this in the form of limited interoperability across the organization due to the ongoing presence of incompatible legacy systems.

Network-based information access will be the underpinning of many business strategies in the coming years. Digital commerce, real-time messaging with suppliers and customers, and virtual workgroups spanning geography and time zones will all be enabled by these interfaces. Proactive network planners should begin now to build a consensus with end users as to what the company's information access strategy should be and to begin a systematic program of evaluation, pilots and roll-outs in advance of individual end-user requests. With the major carriers beginning aggressive direct marketing of these new interfaces, the clock is already ticking and telecommunications planners have no time to waste.

Turner is a principal with Northeast Consulting Resources, Inc., a Boston-based consulting company. She can be reached at (617) 654-0619 or via the Internet at turner@ncri.com.

LOCAL SERVICES

by Art Barber

Dedicated circuits are users' best buys

Today, many large user organizations can cut their local communications costs in half by acquiring their own networks. Unfortunately, most are unaware of the available choices. While divestiture shifted power in the marketplace from the carriers to customers, most customers have yet to learn how to exercise their power in a competitive market.

The most recent Federal Communications Commission reports show that the local carriers handle 99% of local traffic. Competition is available in most cities, but the majority of users call their largest local carrier and do not consider alternative local service.

Yet, while fiber capacity is increasing rapidly, and terminal and fiber costs are decreasing, the carriers are not passing along these savings to their customers. The basis for local telephone rates is the capital investment in the network.

Today, more than 90% of the mileage of most local networks is copper, not fiber. As recently as 1992, the FCC reported that local telephone companies invested $3 billion in new copper plant and only $1 billion in new fiber plant.

Today's local phone rates are tied to the investment in obsolete copper networks and do no reflect the savings that are available with fiber networks.

Because of this, many organizations can save money by acquiring their own fiber network rather than continuing to pay tariff prices for copper carrier services.

Fiber systems are cheaper to construct and maintain. In April, TeleStrategies, Inc., a communications consulting firm, reported that "the average long-distance carrier uses less than 2% of its capacity." If long-distance carriers can make attractive profits using a tiny amount of their capacity then the cost of fiber network service is substantially lower than the prices now being charged.

As a result of fiber's expanding capacity and declining costs, dedicated gigabit networks are a best buy. You use gigabit circuits when you make a long-distance call. The carriers have replaced older 565M bit/sec terminals with OC-48 terminals, which operate at 2.4G bit/sec, along many intercity routes.

The reason is simple: OC-48 terminals allow a fiber pair to carry 400% more traffic. This figure will double next year when terminals operating at 4.8G bit/sec will be available.

In addition, next year some large customers will be able to acquire bandwidth at about 8% of their current tariff prices. Despite this dramatic reduction in the cost of bandwidth, virtually no large users have considered acquiring local dedicated gigabit circuits.

The idea of providing dedicated trunks is not new. When Lightnet was created by Southern New England Telephone Co. and CSX Technology, Inc. in 1985, it offered dedicated T-3 circuits to customers between Boston and Washington, D.C. Customer demand was negligible.

Lightnet changed its strategy and began to lease circuits to the carriers.

For more than 40 years, the FCC has had regulations that authorize any user to lease or buy its own network. As long as the network serves one organization and does not offer services to the public, it will not be subject to state or federal regulation.

Railroads, electric utilities, pipeline companies and many others have operated their own networks for many years. As the gap between the cost of carrier services and acquiring a private, dedicated network widens, more and more large organizations are likely to lease or buy their own networks.

An increasing number of customers now understand what communications services cost. Equally important, more and more companies such as Advantis, EDS Corp., Harris Corp. and TRW, Inc. are prepared to manage communications networks on behalf of the customer rather than the carrier.

Today, in some cities, customers can lease T-3 and gigabit circuits from alternative providers. Despite the savings, they are unlikely to do so until and unless a company such as Advantis or EDS promises to integrate the new, economical trunks into a network of switches, software and other support that will provide the required services.

The use of dedicated circuits is not limited to local circuits. Some large corporate customers are investigating the cost of building dedicated fiber trunks between San Francisco and Los Angeles, and between Boston, New York and Washington D.C. Such networks can be built for a capital cost of $40 million to $80 million. A few large corporate or government customers could achieve substantial savings through long-term contracts for bandwidth on such trunks.

The current debate about the Information Superhighway seems to assume that the future of communications will be decided in the battle between cable companies and telephone companies, and users have no say in the matter. Users do have choices. The question is when, not if, there will be a dramatic decline in rates. This decline will be triggered by more and more large users leasing their own circuits and dropping carrier services.

➡Barber is president of PrivateNet, Inc. in Bethesda, Md. He can be reached at (301) 320-4333.

Letters

Call the doctor

Regarding your article "Insurance and legal issues hobble telemedicine growth" (Sept. 19, page 41).

It is clear that some standards need to be set in the industry. It could be considered illegal and unenforceable to require a doctor to have a license in your state if he or she is practicing via telemedicine.

Consider this: If I come from Kansas and "visit" a doctor in Texas, the doctor in Texas does not have to have a Kansas medical license to practice medicine in relation to the visiting patient.

This is exactly what is happening if you look at the telemedicine example.

Now, I would definitely agree that if I, as the Texas doctor, in any way solicit a consultation and initiate it from my state, into Kansas or any other state, then I should certainly be subject to the restrictions of the state that I am soliciting and/or virtually visiting.

I think that the Kansas Legislature and others who are hastily passing these laws regarding telemedicine should think twice. They will almost certainly have some weighty arguments in the direction of the doctors whose rights they are restricting.

As for the malpractice problem, that will always exist. Forms and necessary waivers can be signed to help with clearing up who is responsible for what.

Forms can be signed virtually, in the presence of witnesses, or they can be signed via fax. In addition, once we have a better understanding and clearer laws, definitions and standards in these areas, telemedicine could be the next great marketing niche. Since I am in the insurance industry, I would love to see that happen.

The expense of such consulting will also be disproportionately large in comparison with on-site consulting until the technologies being used become as commonplace as making a long-distance phone call.

Once such things as the long-promised video phones and the National Information Infrastructure become more prevalent, then costs for telemedicine will decrease dramatically. (My opinions do not necessarily reflect those of my employer.)

Jeff Mason
Systems technical support analyst
Willis Corroon Corp.
Nashville

Less white noise

Regarding the responses to Martha Siegel's opinion column on an Internet code of conduct (Oct. 3, page 51): I have to agree with what many people have said — Ms. Siegel doesn't get it.

Ms. Siegel talks about the Internet Society (ISOC) suddenly attempting to control the behavior of what she implies was a previously uncontrolled area. Perhaps she should try looking at the various frequently asked questions (FAQ) on netiquette, posting rules and so forth. Newsgroups have had a set of rules about posting for quite some time, and they seem to work just fine.

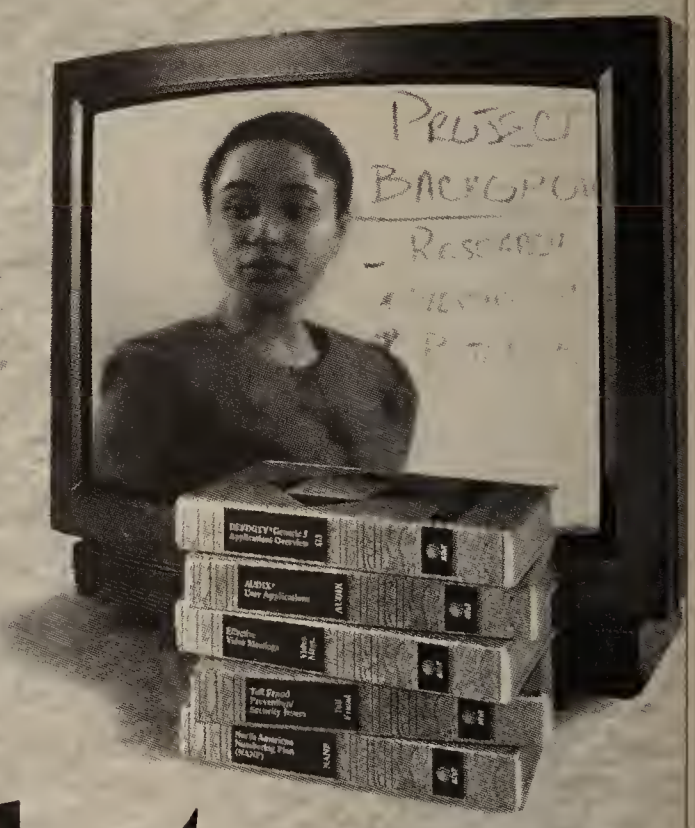
Ms. Siegel says, "One wonders what sort of mentality is shaken to the core by an ad, but finds profanity, pornography, electronic vandalism and censorship only mildly offensive or even, in the name of a pet cause, justifiable."

Well, Ms. Siegel, you seem to be missing something: Newsgroups are formed on various topics so that

See Letters, *page* 52

Let them fit the way your business works.

You've got the phones, *PCs*, *servers*, LANs *and* WANs. Now, let's *talk about* what you *need.*



Master new ways.

Sleep peacefully through a 2 a.m. system alarm.

Let's face it. The real point of having all that stuff is so it can work together to let your people do more. And get the *results* you need.

The AT&T Service Advantage can help make it happen. By fitting your communications hardware and software together like fingers in a glove. Constantly monitoring your systems. Providing nationwide support around the clock. And training your people to give them the confidence to use what you have.

Because when people are sure they can rely on technology–and they know how to make it work–they start to use it to their advantage. They can focus on what needs to be done, instead of how to do it. They work the way they *want* to, instead of how they have to. And they make great things happen.

So call AT&T Global Business Communications Systems at 1 800 325-7466 ext. 501. And let's talk about making great things happen for *your* business.

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NETWORK WORLD TEST alliance

Internet access?

It's in the box!

Spry's Internet In A Box has everything Unix-phobic users need for direct dial-up Internet access.

By Steven Goldberg

Rodney Dangerfield claims he doesn't get any respect, but he never had to provide Internet access to a band of Unix phobics. You can try your best to hammer down a corporate Internet connection, only to have some end users whine about the Unix command-line interface.

The solution may be just a point and click away. Spry, Inc.'s Internet In A Box (IBOX) provides a suite of Internet applications that allow novice users with a modem to dial in to the Internet.

While the product isn't designed as an enterprise solution, it may be just the Band-Aid you'll need to quiet some end users.

The $149 IBOX software includes several Windows implementations of familiar Internet applications such as telnet terminal emulation, a Mosaic browser, electronic mail, a graphical File Transfer Protocol (FTP) program, Gopher and a Usenet news reader.

While the product's applications could use a little more polish, we were generally pleased with IBOX.

IBOX supports the Point-to-Point Protocol for a serial or dial-up version of TCP/IP. For users armed with a personal computer and a modem, IBOX offers full access to the Internet, at, of course, a slower speed than a direct network connection.

For organizations fortunate enough to have such a connection, Spry offers its Air suite of network applications, which runs over various vendors' network TCP/IP stacks.

HOW WE *did it*

We installed Internet In A Box on a Dell Computer Corp. Optiplex 466/L with 12M bytes of RAM and an external Practical Peripherals, Inc. PM14400FXMT modem.

We dialed in to SprintLink, Sprint Corp.'s national TCP/IP network, to reach InterServ, a provider of Internet access via PPP, in order to access services on the Internet.

NET *Result*

Product:
Internet In A Box

Requirements:
- 386 CPU and 4M bytes of RAM (486/33, 8M bytes recommended)
- 9.6K bit/sec modem with hardware flow control; 16550 UART for COM port recommended
- 5M bytes of disk space

Key findings:

Pros
- Economical alternative to network-based Internet access software, like Spry's Air series.
- Easy setup and installation.
- Wide-ranging suite of graphical Internet utilities.
- Vendor-supported Mosaic WWW browser.
- Top-notch documentation, including Spry's version of Ed Krol's *The Whole Internet*.

Cons
- No provision for SLIP connections.
- Lacks ability to send SMTP mail or read MIME messages.
- Use of InterServ dial-in network is expensive; use of other services requires more involved setup.

Vendor:
Spry, Inc.
Suite 200
316 Occidental Avenue South
Seattle, Wash. 98104
Phone: (206) 447-0300
Fax: (206) 447-9008

FIRST, GET CONNECTED

The first step for anyone using IBOX is to choose a service provider (see story, page 44). IBOX's in-stallation and configuration manual provides a comprehensive appendix of access providers and their services. For our testing, we used InterServ, a subsidiary of Spry.

InterServ provides PPP access to the Internet via SprintLink, which is Sprint Corp.'s national TCP/IP network.

The service is accessed via a toll-free 800 number, but it is on the expensive side, with a base rate of $8.95 per month plus an additional $8.95 per hour.

Choosing InterServ enabled us to get up and running right away; registration is interactive. The service uses what Spry calls Remote Account Maintenance Protocol (RAMP). RAMP is used to automatically register the software to Spry and to provide on-line software updates.

The setup procedure is intuitive and straightforward when used with InterServ. The procedure prompts for modem, address and credit card information (the only payment option for InterServ).

After the user enters the requisite information, the procedure dials in to a registration server. When the server verifies the financial information, an account is automatically created.

Our registration failed the first two times we tried due to a lack of a reply between the registration server and InterServ. Our third attempt, however, was successful, and the entire process took just a couple of minutes.

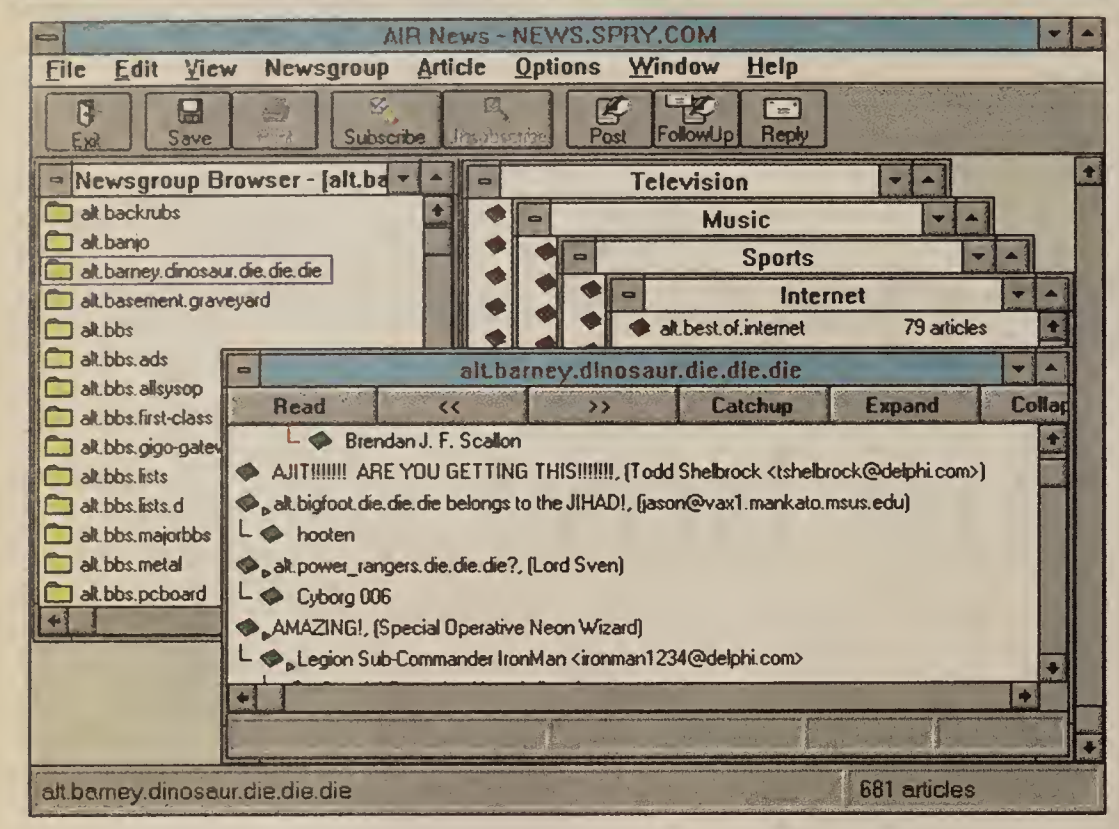
Choosing a different access provider requires that the user obtain detailed information about the account setup. The IBOX documentation provides a form showing the required information. Spry recommends having the selected access provider fill out the form with information such as the host computer name and phone number, domain name server, network mask and other network-specific items.

While choosing an access provider other than InterServ is more complicated, we think it is a manageable task for all levels of users.

Users are also required to provide an Internet address, logon and password of the E-mail server that

Continued on page 44

Figure 1



Air News is a nice Windows interface for Internet newsgroups, but it lacks support for MIME-encoded binary messages.

Continued from page 43

will be used with IBOX. Using a separate logon for E-mail allows multiple users to share a single IBOX PC, while also having access to a private mailbox. IBOX supports the Simple Mail Transfer Protocol for receiving mail only. For send and receive functionality, IBOX requires the Post Office Protocol (POP). This is a drawback, in our opinion, since all access providers do not support POP, while virtually all support SMTP.

Spry has gone a long way in simplifying a complex procedure; the entire installation process took about 40 minutes, including reading the documentation. The installation documentation is clearly and concisely written for the new user. The initial interaction between users and a new piece of software is crucial, and Spry scores big with this easy setup.

APPLETS ANYONE?

IBOX comprises several stand-alone applications, and the first one the user is likely to see is the Dialer. Users can run the Dialer separately to establish a PPP connection. If the user instead runs an applet first, the Dialer is launched automatically and attempts to connect to the selected access provider.

During the connection process, informative dialog boxes are displayed by the Dialer, updating the user on the connection's status. Once the connection is made, the Dialer application minimizes itself and displays the elapsed connection time.

The Dialer application is extremely flexible. It has manual and automatic modes. In automatic mode, the entire connection process can occur without user intervention. Automatic mode also gives the option of creating customized prompt windows to enter private information, such as a password. Automatic mode is customized through a point-and-click scripting language that takes most of the sting out of connecting to an access provider.

Once the PPP connection is established, any of the IBOX applications can be executed. Spry's Air Mosaic is a commercial implementation of the University of Illinois National Center for Supercomputing Applications' (NCSA) freeware Mosaic application. The main benefit of Air Mosaic is that it is supported by Spry, while the NCSA version is not.

Air Mosaic is similar in form and function to its various Mosaic cousins. Users can quickly access World-Wide Web (WWW) servers across the Internet, pointing and clicking through myriad hypertext links. Air Mosaic includes an "address book" of popular WWW servers, ranging from hardware vendors to entertainment servers. Any "unlisted" servers that are accessed can be added to the address book from Air Mosaic's Add toolbar button, which is a time-saver when trying to revisit a favorite server.

Air Mosaic defaults to the Global Network Navigator (GNN) WWW home page. GNN, an excellent starting point for new users, contains numerous hypertext links to resources on the Internet. The server provides information ranging from how-tos on incorporating your company to the comic strip "Dilbert."

IBOX also provides a Gopher client, Air Gopher. Gopher, a precursor of Mosaic, is a text-only resource browser that does not employ hypertext links. Air Gopher, like most of Spry's file management tools, closely resembles the Windows File Manager. Server and directory navigation are simple with this application. We used Air Gopher to search and retrieve a list of book reviews from National Public Radio. With the current push toward WWW servers, Gopher does not receive much glory. Nevertheless, Spry's Air Gopher does its job well.

Another simple, yet crucial, IBOX applet is Air Telnet. Telnet is a terminal-emulation program that users employ when logging on to remote hosts on the network. Air Telnet maintains a dynamic address book of all hosts to which a user has connected. The software also allows for concurrent Air Telnet sessions, which can be useful for cutting and pasting between hosts.

And what would Spry's Air series of applications be without — you guessed it — Air Mail. Spry's E-mail client is full-featured and easy-to-use. Address books are easily maintained, and users can work off-line to save time and money. Messages are stored in easily managed File Manager-like folders.

A particularly nice feature of Air Mail is its ability to handle attachments. Files are attached using standard Windows dialogue boxes. When a user sends a message with attachments, the attached files are automatically uuencoded. Uuencoding is a standard that converts binary files to ASCII files so they can more easily travel across Internet links. This automatic feature is a real time-saver.

Next on the Air hit list is Air News, a newsgroup reader (see Figure 1). The news server on our host supports about 6,000 newsgroups, from comp.binaries.ms-windows to alt.chinchilla, including both the Usenet and Clarinet services.

The Air News interface, while familiar, was somewhat lacking. Also, Air News lacks Multipurpose Internet Mail Extensions (MIME) support. This means that attached graphic files must be detached, decoded and viewed separately, rather than viewed directly in Air News. While IBOX provides the utility programs to decode and view these attachments, users should not have to perform all these steps separately.

One of the slickest applications in the IBOX suite is the Network File Manager (see Figure 2). This graphical substitution for the command-line FTP program is the perfect complement to the Windows File Manager. Starting the Network File Manager launches the Windows File Manager and places the two applications side by side. The Network File Manager then prompts for remote host connection information, which can be entered manually or selected from a modifiable address book.

Once connected to a host, remote directories and files are viewed and traversed with an interface similar to that of the Windows File Manager. Additionally, files can be sorted for viewing in several ways, including by file name, size, creation date and owner. We especially like the ability to drag and drop files between the File Manager and Network File Manager, with a thermometer that shows the progress of the given operation.

IBOX is an excellent choice for corporate users without a direct Internet connection. The suite of applications permits users to access the many facets of the Internet as fast as their dial-up modem will allow. IBOX does not, however, enable a user to add resources to the Internet. The software does not permit users to, say, create a WWW home page or to act as an FTP host. Users with these demands need to look toward enterprise solutions like IBOX's parent application, Spry's Air Series.

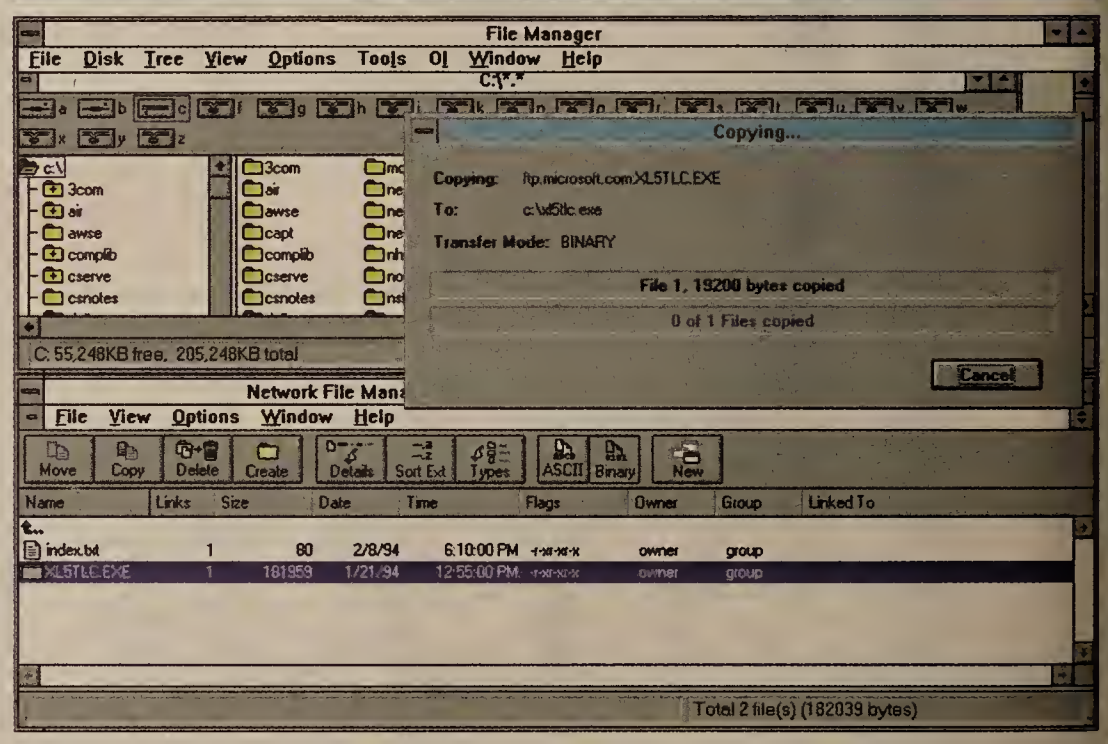
Choosing an on-ramp

The biggest decision about using an Internet access product must be made before the shrink-wrap is pierced. Organizations must choose and subscribe to an Internet service provider prior to the installation of the software.

Companies should examine various vendors' options and keep in mind some key considerations when choosing a service provider, with a goal of minimizing access charges while retaining maximum flexibility.

For the laptop-toting road warrior, a service provider with a toll-free number or one with local access numbers across the country, is desirable. For the small business or home user, a local access number that has a base fee is probably the most cost-effective option.

Figure 2



Network File Manager is a familiar front end for FTP file transfers.

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Steven Goldberg is a technology analyst with a major accounting firm in Boston. He can be reached at sgoldberg@vax.clarku.edu.

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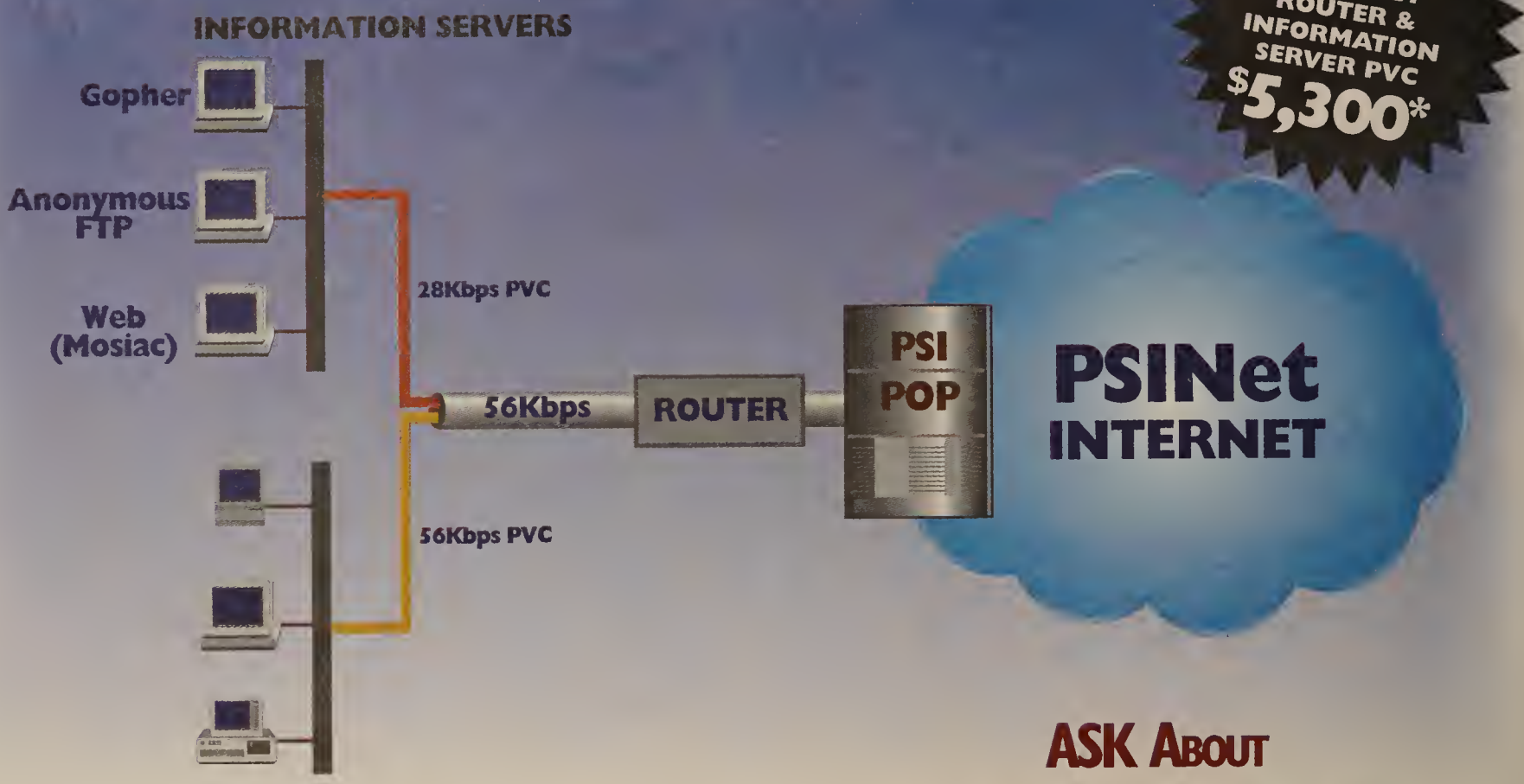

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Rev. 10/11/94

Rx for a successful RFP

Take two doses of good advice and call your vendors in the morning.

BY CARL FRAPPAOLO

The prospect of writing a request for proposal is about as appealing to some users as root canal surgery. But, as we know, "an ounce of prevention is worth a pound of cure." This is clearly the case with RFP development.

The value of a well-crafted RFP is significant, particularly when considering the purchase of an immature technology such as tools for enterprisewide client/server networks. In these instances, the most difficult task is often sorting through myriad options and determining which product approach most closely aligns with your needs.

A well-conceived RFP sends the message that you are taking responsibility for defining your technology solution. You further establish yourself at the helm of the product evaluation process and minimize the possibility of a vendor seizing undue control.

There's a catch to all this, of course. The RFP is not a panacea but rather a challenge in its own right. Improperly constructed and authored, the RFP will only add to your decision-making dilemma by failing to provide clear distinctions among proposed bidder solutions. And that will ultimately make your job of product evaluation that much more difficult.

LAYING THE GROUNDWORK

You cannot write an effective RFP without first being clear on both your corporate goals and the related technology requirements. The best RFPs clearly define the business needs of the organization before describing any desired technology solution. Before you write a single line, you should assemble an evaluation team — typically spearheaded by IS and business unit managers — and analyze your requirements from a solid business perspective.

Once corporate goals are mapped out, perform a similar analysis on the technology requirements to support and sustain business objectives. Involvement from various levels of the organization is crucial to the success of the technology planning phase. Users, technologists and management must be polled to ascertain the impact of prospective technologies on their workflow processes and business cycles, and to ensure the technology solution meshes with the organization's strategic goals. (For a detailed analysis of the steps in the strategic assessment and technology definition phases, see *NW*, Aug. 15, page 47.)

With business objectives and the enabling technologies clearly defined, it's time to launch the next crucial step in realizing the goal of creating a solid internetworking infrastructure — the creation of the RFP.

NUTS AND BOLTS

The best way to achieve substantive, coherent vendor response is to start with a solid mission statement of your firm's goals and technology needs and proceed to increasing levels of detail. At minimum, your RFP should consist of the following sections:

- Overview
- Instructions to bidders
- Glossary of technology terms
- Functional requirements
- Vendor response survey
- System acceptance criteria
- Addenda

As one major petrochemical company in the southern U.S. recently discovered, a well-executed RFP greatly expedites vendor response evaluation and product selection.

This firm's chief concern in developing an RFP for a client/server document management system was that its strict rules and language would cause many vendors to drop out of the bidding. Indeed: The RFP is meant to be used as a strategic tool to discriminate among vendors.

Measure your RFP's success by the quality, not the quantity, of responses that you receive. This client received only four responses, but they all offered valid, solid solutions. Each response came in a hardbound volume and made ample use of illustrations and graphics.

Most importantly, all four vendor responses were similarly formatted with a nearly identical treatment of indices and sections. This level of consistency in presentations greatly impacted the speed with which the responses could be reviewed and compared.

Although RFP development was a laborious effort for this firm, vendor slection became a straightforward process. Further, the RFP served as the foundation of a mutually agreeable partnership between users and providers of the solution.

RFP'S OVERVIEW

Begin your RFP by providing a high-level overview to give the vendor a strong sense of the priority and scope of your project. In your mission statement, outline the business issues that caused you to embark on this project and the technologies you believe will provide the solution. Explain why you are embarking on this application and what you hope to accomplish. You want vendors to see this as a long-term solution and a well-thought-out strategy that has the potential for a long-term partnership.

An international overnight package delivery company stated its mission in its RFP overview to implement an enterprisewide imaging system to improve its competitive advantage. The user sought

Continued on page 48

RFP time line

Step 1: Composing the RFP document — 5-6 weeks

- Overview
- Instructions to bidders
- Glossary of terms

(3 days to 1 week)

- Functional requirements, including identifying tactical applications (1 week - may be done in tandem with developing technology solution strategy)
- Vendor response survey (2-3 weeks)
- System acceptance (3-5 days)
- Addenda (1 day)

Step 2: Administering the RFP — 4-6 weeks

- Document is sent to selected vendors.
- RFP team member is on call to field any vendor questions.
- Conference calls are made with bidders for progress reports.
- Heads-up call to bidders is placed 1 week before responses are due.

Step 3: Evaluation and decision — 1-3 weeks

- Vendor responses are weighed and final candidates selected.
- Finalists are contacted to submit product for internal testing and review process.

Total: 10-15 weeks

Continued from page 47

many specific results from prospective solutions, including the ability to create air bills on the fly, a facility to calculate optimal delivery routes and features for quickly pinpointing a package's location.

It is important that the RFP's overview section establish this larger view since many RFPs are initially written for pilot applications, which often lack the scale necessary for significant leverage with a vendor. A strong mission statement lays crucial groundwork by signaling your intent that this pilot project is a precursor to larger implementations.

INSTRUCTIONS TO BIDDERS

With the overview section set, you'll need to craft a section that gives vendors a sense of the evaluation process. Your objective in the Instructions to bidders section is to convey the message that you are in control of your solution. Clearly list what you expect from the vendor — timetables, deadlines and contacts; the level of detailed response required; the inclusion of schematics/diagrams; and the formatting requirements of the formal response document such as layout, sections and indices.

While you will get into the specific metrics used to measure participating vendor products further on in the Functional requirements section, the Instructions to bidders sets the tone of your RFP and lays the foundation for a consistent, fair product evaluation process.

GLOSSARY OF TERMS

The lack of standards associated with nascent technologies often includes the absence of an industry-accepted vernacular. If each vendor expresses ideas and proposes technology solutions using different terminologies, it only serves to heighten your confusion when comparing responses. There is also the possibility that RFP responses do not properly answer your questions because the vendor misinterpreted your terms.

This situation can be avoided by including a glossary of terms, which eliminates confusion and misinterpretation by establishing a common playing field. It also gives you the first leverage point. By stating the RFP's terms, you make it clear this is your RFP and that vendors must respond on your terms. You only need include the words or phrases critical to understanding your RFP and terms for which there may be ambiguity in meaning. If established standards exist, there is no need to be redundant and define them here. Position the glossary near the front of the RFP, and call attention to it in the Instructions to bidders section.

FUNCTIONAL REQUIREMENTS

It is essential that this section of the RFP be direct and to the point since it is here you define the functional requirements for any product to be accepted for evaluation. Nonnegotiable issues should be emphasized and described as "hard stops" for responding vendors. For example, "The solution must support Windows and Macintosh clients. This is our existing infrastructure and will not be changed." Or, "We require scanner throughput speeds of 50 pages per minute or greater." Spelling out hard and fast technology/performance requirements draws the vendor's attention to key issues. It also lets them quickly determine whether their product meets the basic qualifying criteria to proceed with the RFP or not.

VENDOR RESPONSE SURVEY

The vendor response survey is perhaps the

Vendor solicitation: *Use the right tool*

When seeking information from vendors, it is important to realize the specific type of assistance you require and use the appropriate tool. There are important differences among the various documents used to solicit responses from vendors: the request for information (RFI), the request for quotation (RFQ) and the request for proposal.

Use an RFI when you are looking for an education on a technology but have no imminent need or particular problem to be solved. In contrast, use an RFQ when planning an immediate purchase in a commodity market such as PCs, printers and so on. Draft an RFQ when you have a pressing need for an off-the-shelf product where your overriding concern is to identify the most cost-effective solution.

The RFP is a hybrid of these documents. RFPs should be used in young markets where — although you have substantial knowledge and an imminent need — the technology is immature. This is often the case with areas such as client/server nets, workflow and document management where a lack of established standards precludes a straightforward product selection process.

most strategic piece of the entire RFP document since the information gleaned from this section will provide the basis for product assessment. It is essential that this survey be carefully constructed and complete because this is where the vendor is most thoroughly interrogated.

Repeat all hard-stop functional requirements in this section as a good way to stress key issues. You will ease the speed of vendor responses — and your subsequent evaluation — if you organize your questions in hierarchical fashion. For example:

- Imaging — Identify all industry standards. Identify all forms of compression supported.
- Scanning — Explain how your offering handles color images. Fully describe your product's method of inputting, displaying, storing and archiving images.

Obviously, these examples are just the tip of the iceberg in designing a thorough, concise vendor survey. In the case of imaging, additional survey sections would be needed to glean information about document access and retrieval, database integration, workflow and so on. The point is to be as comprehensive and all-inclusive as possible in designing the vendor survey questionnaire.

Keeping score

Use a point rating system to prioritize the product evaluation criteria contained in your RFP. You may assign point values to each section and subsection or use a more flexible percentage ranking system.

The vendor response survey provides the best avenue for getting all your questions answered. Therefore, it is important that this survey be as exhaustive in content as possible. Pay equal attention to the manner in which you assemble and format the survey. The questions should be grouped into categories and arranged in descending order of importance. Strict attention to both content and execution of the RFP benefits all involved. Vendors with a clear understanding of what you require can execute the RFP in an accelerated time frame. On the other hand, vendors who refuse to answer all questions or seek to radically redefine your requirements should be viewed as not being able to provide a solution that meets your needs. This is a definite indication of a vendor to eliminate.

SYSTEM ACCEPTANCE CRITERIA

Your RFP should provide structure to the entire application process, not just product selection. In the section, System acceptance criteria, specify milestones and performance goals from an administrative perspective, and establish the conditions by which the vendor and the solution will be evaluated in those areas. For example, your RFP may explicitly state that users must sign off on the deliverable before the vendor is paid in full. Such qualifiers have proven to be a reliable and expeditious way to solidify a strong partnership between users and solution providers.

ADDENDA

In this closing section, include any additional information you think offers important background in understanding your problem and the RFP. Examples of information you might put in the addenda include:

- Sample scenarios of business processes to be addressed by the proposed technology product. Encourage vendors to furnish detailed descriptions of how their offerings would provide the technology solution to the hypothetical scenario. These samples prove quite valuable because they are the closest approximation of a product's ability to perform as a real-world application.
- A graphical depiction of the corporate network to ensure adherence to the infrastructure.
- The results of any research studies or user surveys that may have been conducted in creating the RFP.

IT'S ALL IN HOW YOU SAY IT

Effective communication is the bottom line with any RFP. Exerting every effort to enhance the vendor's ability to read and decipher the RFP is ultimately in your best interest.

It is critical that it be concise and clear. Use the structure of the document to keep your thoughts on track and to organize the vendor's responses. Keep your mission statement terse. Use redundancy moderately to emphasize points that you feel are especially important. Organize the RFP document in numbered sections, and require the vendors to use this same numbering/sectioning format in their responses. This ensures clarity and consistency in the RFP and in the vendors' responses that will make your evaluation and selection process measurably easier.

Frappaolo is executive vice president of Boston-based Delphi Consulting Group, Inc. He may be reached at (617) 247-1511 or via E-mail at 75051.25@compuserve.com.

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Help desk

Continued from page 2

I've also checked the status in Bconsole and Bsetup, and the parameters are set to their maximum values. Do you know what might be the problem?

Henry Sun, Vernon Hills, Ill.

Ronald Nutter, a network systems engineer at IntraSource, Inc., a Novell Platinum-authorized reseller and service center in Lexington, Ky., replies:

The first thing you might want to check is the Cache Buffers % in monitor.nlm from the Resource Utilization menu selection. If the value is less than 70%, add memory to the server until the cache buffers percentage falls in the 70% to 80% range.

Next, make sure that you have the latest hard disk controller drivers for the hard drive adapter in your server.

Older drivers have been known to suddenly develop problems.

You might also want to check with the vendor of the database program you are using to see if it supports Btrieve 6.10 — the latest version of Btrieve. Btrieve 6.10 is available from CompuServe's NetWire in the Novell Library, NOVLIB, in Data Library 7 under the file name BTR61.EXE.

It is also available on the Internet via anonymous FTP from ftp.novell.com in \pub\netwire\novlib\07\btr61.exe.

You could also run the NetWare Purge command from the workstation to free space on the volume where the database is located.

This will remove previously deleted files still being tracked by NetWare for possible recovery by Salvage, the NetWare recovery program.

In addition, make sure that you have the latest available LAN drivers for the server — the problem you are describing could be related to an older LAN driver.

You can also try running a network analyzing tool like Novell's LANalyzer for Windows while generating a database report to see if there are any communications problems on the network.

If all else fails, the workstation may be the root of the problem. Check to see that you have the latest Open Data-link Interface drivers for the workstation.

Letters

Continued from page 41

only those interested in that subject will have to see notes on it.

And censorship — oh, now there's a loaded term.

Is it censorship if, for instance, a magazine devoted to cats decides not to print a dog food ad? Would it be censorship if a newspaper printed in Russian chose not to run a letter that was written in German?

From my point of view, having ads on the Internet, or even in Usenet groups, is probably fine. However, and this is an awfully big however, they should be placed in appropriate places.

A World-Wide Web site for Canter and Siegel would not have caused me to blink an eye. Posts to misc.legal or other similar newsgroups would not have generated the type of uproar that Canter and Siegel's postings generated. Petitioning for a newsgroup hierarchy specifically for ads (or adapting an existing newsgroup to be used for them) probably would have been met with a fair amount of support. Posting to every single newsgroup you can find is obnoxious.

Generally, when someone new to Usenet gets flamed for an inappropriate posting, they learn something from it. At the very least, they usually understand the point of the people who think they did wrong, even if they don't agree. But I don't think Ms. Siegel sees any need for rules on Usenet.

Instead, she is going to scream from the rooftops that people are being censored by the concept of a code of conduct. "...What will the standards of conduct accomplish other than limiting free speech?"

What it will, what it has, and, with any luck, what it will continue to accomplish, is more information and conversation and less white noise on the Internet. (I do not speak for my employer.)

Tina Sikorski
Programmer
Practi-Col Services, Inc.
Evanston, Ill.

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Have you seen an article in *Network World* with which you strongly disagree or heartily concur? If so, send us your thoughts in a letter to the editor.

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Be-deviled

Frankly, if it weren't for net.criminals like Martha Siegel and her partner, there would be no need for the ISOC to create some formal code of conduct. If she were capable of reading, or deigned to lower herself to consult the various netiquette guides, she would find that a code of conduct already exists. In fact, it's pretty well defined, so the ISOC doesn't have too much to do to finish the job. As far as I'm concerned, if we all send Ms. Siegel and her partner in crime an E-mail bomb every time we find out their new addresses, maybe they'll get the picture one eon or another.

But then, they're lawyers, and like spoiled children, any attention is considered a positive reply, so maybe this tactic won't work too well.

By the way, did it ever occur to anyone that what Canter and Siegel were selling was a service any potential immigrant can get for themselves for free from the Immigration and Naturalization Service? I mean, how brain dead do you have to be to want to pay for this service? The folks on the Internet are probably about some of the most literate and best educated people in the world, and Canter and Siegel want to try to sell a green card lottery service via the 'Net? Right. And I have some ocean-front property in Colorado to sell you.

Ms. Siegel quotes from various people and books, and every single quote reminds me of the old saw that "Even the devil can quote from the Bible to prove his point."

Brad Knowles
Alexandria, Va.

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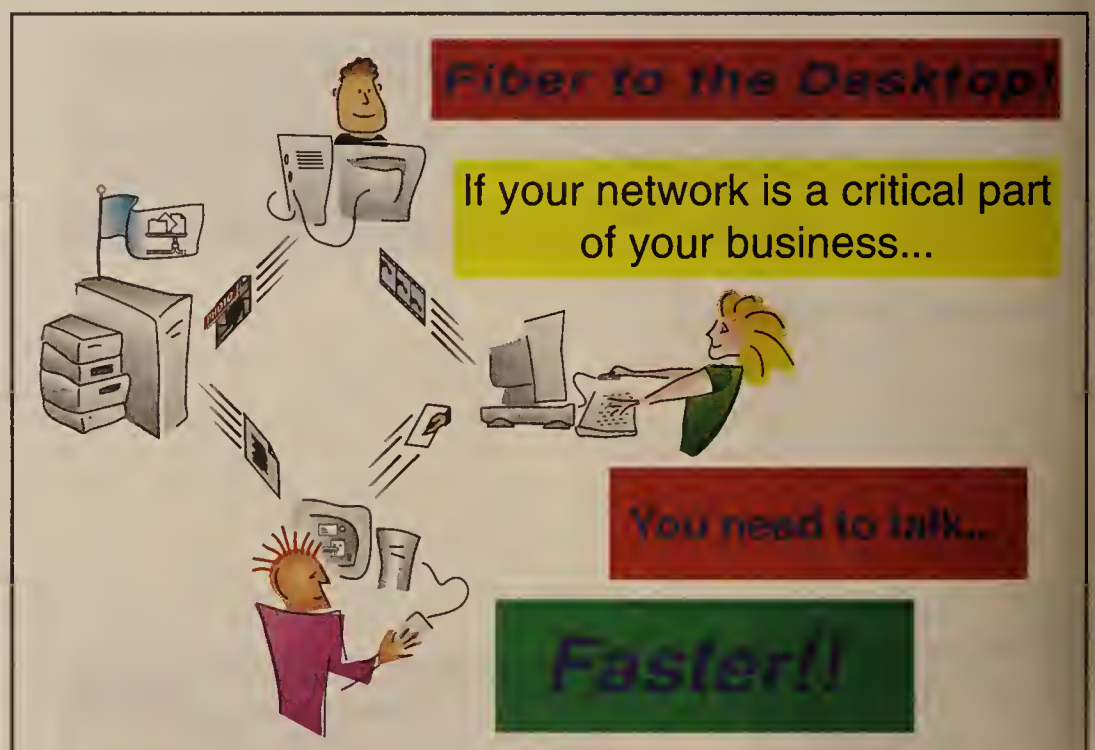

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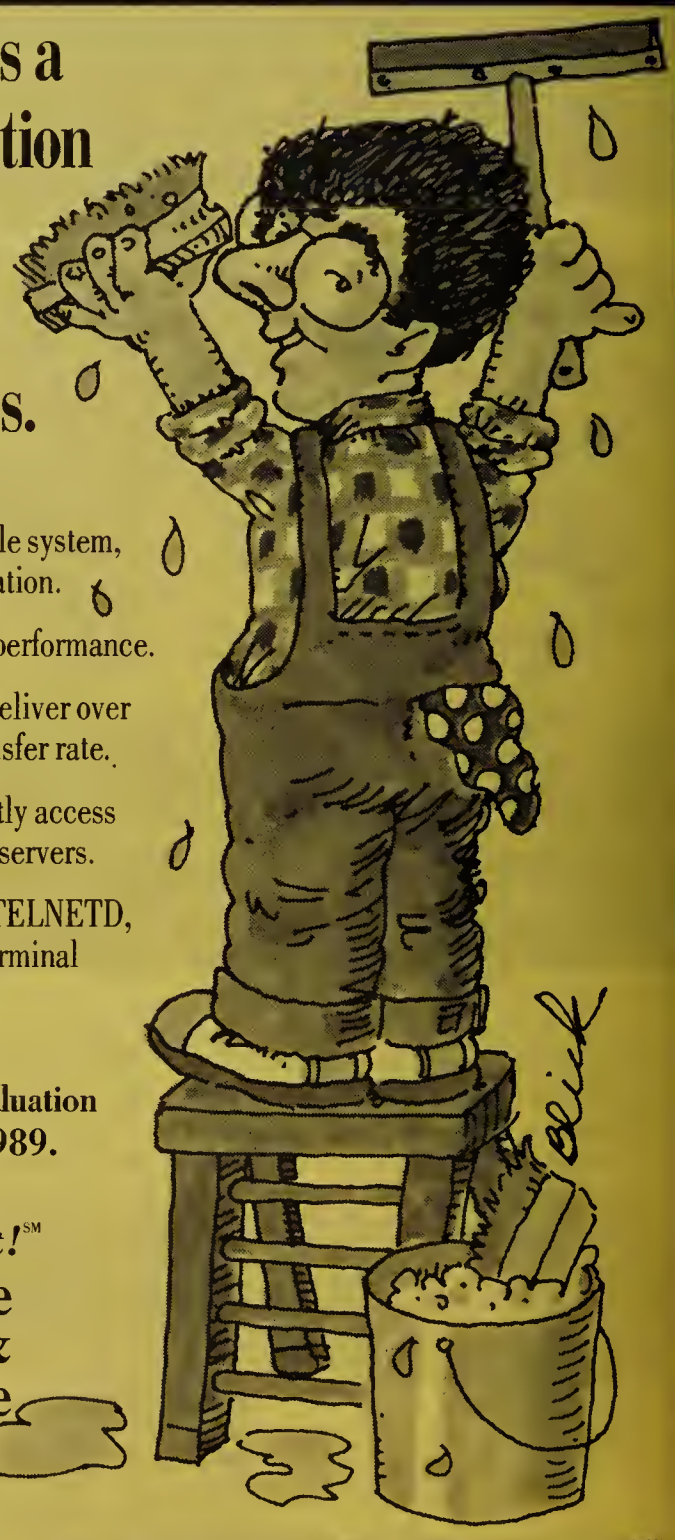

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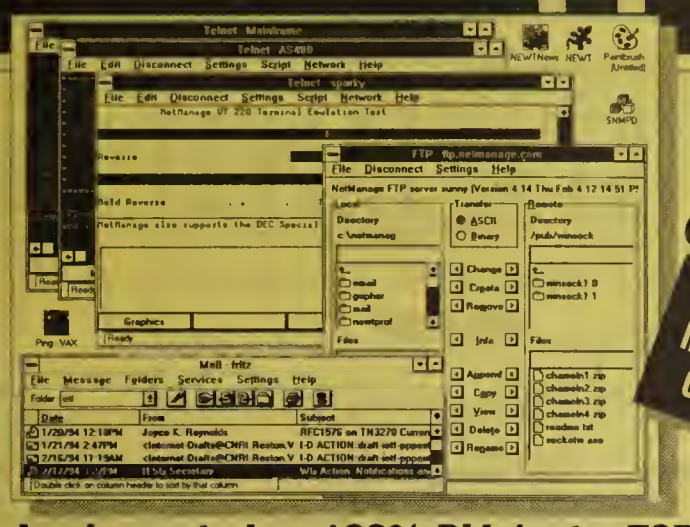

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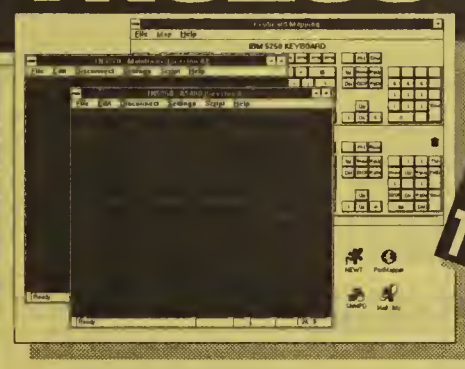

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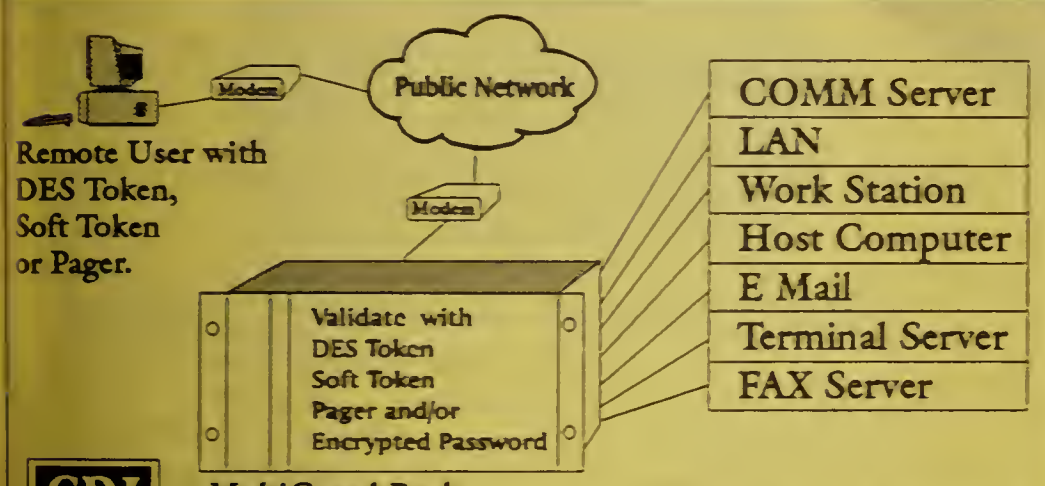

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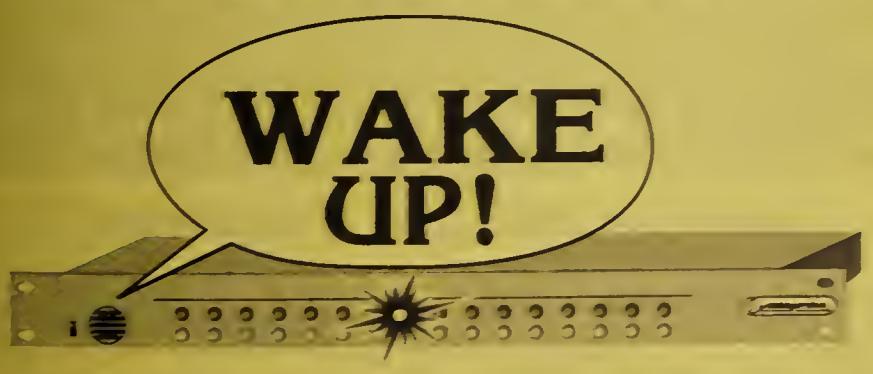

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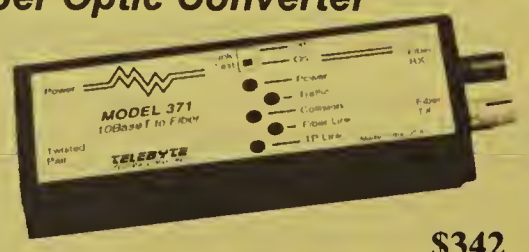

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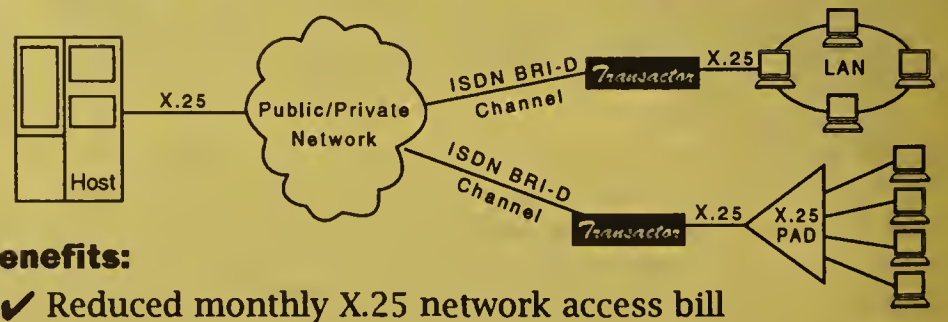

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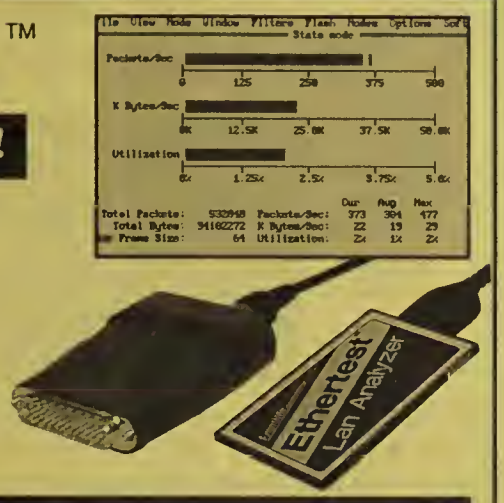

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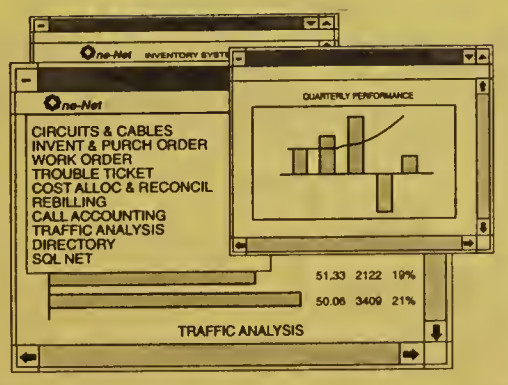

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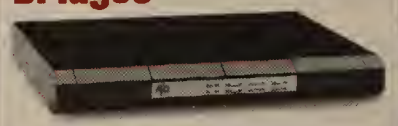

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GTE Telephone Operations

Cost leaks

Continued from page 1

"There are companies cutting 10,000 heads that aren't cutting any trunks or lines," Thatcher said.

On the flip side, staffing deficiencies can masquerade as network clogs. A carrier might run busy-signal studies for a customer, for example, that reveal an unacceptable number of busies in a given week and lead the customer to conclude more lines must be installed.

Take your pick

Programming your PBX to route calls to the least expensive intra-LATA toll carrier is one way to pare telecommunications costs.

Sampling of intra-LATA toll rates (in cents)*

Carrier	Day	Evening	Night
Bell Atlantic (in Pennsylvania)	16.7	13.0	8.7
AT&T	26.3	17.7	14.3
MCI	25.9	17.4	14.0
Sprint	26.3	17.7	14.3
ATX	13.5	13.5	13.5
Eastern Tel Long Distance Service	14.0	14.0	14.0

* Cost per minute for a 25-mile call averaging 3 minutes.

GRAPHIC BY TERRI MITCHELL SOURCE: INSIGHT RESEARCH CORP., LIVINGSTON, N.J.

Closer examination could show the real cause to be a staffing problem: The busies might be occurring during peak periods when there is not enough manpower to handle the calls — meaning the company should add bodies during those times, not bandwidth.

CALL 'EM BACK

One user discovered a solution to the customer service backup problem that he said has sliced 5% off his monthly telecommunications bill.

Richard Borgs, associate vice president of telecommunications at Cost-Care, Inc., a large health care organization in Newport Beach, Calif., rigged up an interactive voice response system to work with his automatic call distributor database.

The system automatically registers the calling party's phone number and informs the caller that the company will call him right back, thus reducing connect time on the Cost-Care network and the associated costs.

Aside from the telecommunications bill reduction, the measure has freed up frustrated customers' time and increased Cost-Care's call center productivity 20%, said Borgs.

CIRCUIT STRATEGIES

Swapping out switched 56K bit/sec services for ISDN is slashing costs at some firms. FMC Corp. in Dallas is saving 80% to 90% on its dial backup bill this way. The firm is replacing switched 56K bit/sec links from AT&T for ISDN basic-rate service wherever it is available to back up its worldwide T-1 backbone, said Robert Keller, manager of communications systems.

For the standby switched 56K service, FMC pays $300 to $600 per month plus a minimum usage charge of $95 per site — a high price for links that are used only in the event of a failure.

The ISDN alternative runs $30 to $50 a month per site with no minimum usage charge — plus bandwidth goes up to 128K bit/sec, he said. FMC's up-front equipment investment is running about $1,000 per site for ISDN interconnection equipment, Keller said.

Now that long-haul carriers can compete in the intra-local access and transport area toll market, Robert Rosenberg, president of Insight Research Corp. in Livingston, N.J., advises users to examine alternative carriers' costs — particularly those from resellers — and program their PBXs to automatically route calls across the least expensive network (see graphic).

Scott Maltz, a telecommunications bill auditor at Telecom Services, Ltd. West in San Francisco, said users should also make sure the phone company is not charging them for circuits long disconnected. One New York customer replaced 50 analog PBX trunks with digital ones — but New York Telephone for several years continued to bill for both, he said, to the tune of $5,000 a month.

Such errors are common, Maltz pointed out, since the personnel who pay the bills are generally not the people who disconnect the services. When they see the same charges on a bill year after year, they assume they are supposed to be there, he said.

PBX HINTS

Users should also look to eliminate any PBX features they no longer take advantage of, even if the PBX is already paid for.

"By getting rid of ports and features not being used, you can significantly reduce your monthly maintenance contracts," Thatcher pointed out.

Renee Seay, president of the AT&T Global Definity PBX Users Group, warned about lurking audioconferencing costs. Some PBXs have limitations on the number of conferees that can participate, so users tend to turn to an outside an operator for service.

"This could add $5,000 to $6,000 to your monthly bill and you wouldn't even know it," Seay said.

The solution is setting standard policy and educating users about it, she said.

The formal policy setting translates over to the fax world, as well. Though 36% of Fortune 500 companies' total telephone expenses are fax-related, 70% of the Fortune 500 have no fax policies, guidelines or training programs in place, according to a Gallup Organization poll conducted for Pitney-Bowes Facsimile Systems Division last April (*NW*, April 25, page 31). Thus, most tend not to use cost-saving features, such as batch transmissions at off-peak periods.

According to the Gallup survey results, a firm could save nearly 10% on total fax costs by delaying one-quarter of their fax traffic until after-hours.

Specification

Continued from page 6

RPCs via a relatively simple "bridge" built into UNO ORBs. The proposal approved last week actually incorporates the Digital-HP submittal but specifies that ORBs based on it can be considered "CORBA 2.0 compliant" only if they add support for UNO.

Since the whole point of CORBA 2.0 is to guarantee that one vendor's ORB talks to another, those were fighting words to companies such as Digital, which issued a statement that the vote could "set back the industry for years."

Robert Bismuth, director of corporate standards for Digital, said RPCs represent a proven technology that works over a variety of networking protocols — as well as providing hooks into the OSF's Distributed Computing Environment back-end services.

"I have some indigestion over this at the moment," Bismuth said.

Digital and HP proposed a compromise under which both communications protocols would be approved, followed by development of gateways between them. However, Stone said there would be no way to promise users 100% interoperability via gateways.

Carl Soeder, research and development section manager at HP, said he was optimistic that some agreement could still be reached. HP, Digital and the other vendors have spent several months attempting to develop a single proposal.

Client/server

Continued from page 1

mainframes and the scarcity of client/server development tools made the "mainframe-as-a-server" concept a tough sell.

The company appears to be making progress in turning that situation around. LSCD has made significant strides this year toward moving the mainframe out of its closed, hierarchical shell. For example, the firm will soon ship OpenEdtion for MVS, a Distributed Computing Environment-compliant platform that will enable users to develop cooperative processing applications on the venerable MVS operating system, as well as run Unix applications.

It also recently began shipping the first of its less expensive, next-generation Complementary Metal Oxide Semiconductor-based mainframes. Nicholas Donofrio, LSCD's senior vice president and general manager, said these mainframes are less expensive and more flexible than any IBM has built, and he fully expects to beat providers of mainframe alternatives in price/performance comparisons.

In addition, IBM recently announced mainframe support for C++ and its System Object Model (SOM) and Distributed SOM technologies, which will make it easier to build client/server applications.

"It's critical that we lower the cost of connectivity [to the mainframe]."

-Nicholas Donofrio

"It has clearly been a struggle to get our message out," Donofrio said. "But we are designing mainframes to be servers of servers and servers of clients."

One sign the message may be reaching receptive ears: Mainframe sales are stronger now than they've been in years.

But obstacles remain.

One of the biggest knocks against bringing a mainframe into the client/server environment is the expensive and difficulty of linking LANs to the mainframe. IBM plans to change that by the end of 1995's first quarter when it introduces the Open Systems Adapter (OSA) for its Enterprise System/9000 Model 511- and 711-based mainframes.

The adapter will let users link as many as 80 Token-Ring or Ethernet LANs or as many as 32 FDDI LANs directly to the mainframes. OSA is integrated into the mainframe chassis via a "cage." Each cage supports 20 Ethernet or Token-Ring LANs or eight FDDI LANs. The ES/9000 Model 711 can support four cages, and the Model 511 supports two.

OSA will support SNA/LAN traffic as well as TCP/IP and Novell, Inc.'s IPX. It will work in conjunction with IBM's TCP/IP for MVS to off-load TCP/IP processing, saving more than 30% of the mainframe cycles normally required to process TCP/IP. The adapter will also support Asynchronous Transfer Mode interfaces in the future.

It will run with IBM's LAN Resource Extension (LANRES) application, which lets the mainframe act as a big server for NetWare LANs and off-load IPX processing.

"To make the mainframe a server, we need to bring the mainframe directly to the LANs," said Roger Miller, an IBM senior programmer. "OSA provides a high-bandwidth, low-cost connection for LAN devices."

Miller declined to give a price for the new adapter.

"[OSA] sounds like a good idea. There are lots of users who tried to get off the mainframe onto LANs and found they did need access to the mainframe. Now they need an easy way to get back," said Lionel Geltman, assistant vice president with the Nomura Research Institute America, Inc. in New York.

But OSA could create confusion among customers because it seems to overlap with the role of IBM's 3172 Interconnect Controller and new 3746 Nways Controller, which offer LAN-to-mainframe connectivity.

"OSA steps all over the 3172," said Anura Guruge, an independent analyst based in New Ipswich, N.H. "It will depend on how IBM prices it because it's not clear why a user would need a 3746 or 3172 in the future."

Miller said OSA would not support Synchronous Data Link Control connections and, thus, it would not obviate the need for the 3745/3746. As for the 3172, the OSA "steps on that a bit," Miller conceded, but added that the 3172 supports frame relay and the OSA does not.

In another LAN-to-host integration effort, IBM will introduce a new clustering technology known as the Enterprise Integration Server. It utilizes a little-known IBM parallel switch technology called Allnode to cluster up to 16 RISC or industry standard-based PC server platforms with a S/390 mainframe in a single server image.

Users have free access to all resources within their cluster. For example, they can share storage devices, files, databases and printers. IBM did not detail how many users could be supported by individual clusters or if multiple clusters could be grouped together.

In its first incarnation, the Enterprise Integration Server will tightly integrate AIX/6000, OS/2 LAN Server and Novell NetWare servers with IBM's LANRES, LAN File Services, DB2 and other applications on the mainframe. Included will be an integrated systems and net management console that will monitor resources, such as disk capacity, across the cluster.

"IBM has tried for a long time to group resources together and let users monitor them locally," said Thomas Nolle, president of the CIMI Corp. consultancy in Voorhees, N.J. "It is one way IBM will get users to effectively include the mainframe in small distributed workgroups."

IBM: (800) 426-2255.

Comments?

See "How to reach us" on the back page.

3Com

Continued from page 1

around mid-1995, according to sources. The products will consist of adjunct or stand-alone boxes that can be installed with 3Com's switched Ethernet hubs. The offerings may include application-specific integrated circuit chips that can be added to Ethernet adapters, switches and hubs.

Setting priorities

3Com is preparing technology for a set of new products and upgrades that will let existing Ethernets give priority to multimedia traffic. Oracle, Novell, Sun and Apple have all pledged support.

3Com's partners will offer products, such as servers and workstations, incorporating MEE hooks, sources said.

3Com declined to comment on its plans.

A VIABLE OPTION?

MEE will make Ethernet a viable medium for multimedia applications, helping network managers put off expensive ATM upgrades to the desktop, said Melinda Le Baron, an analyst at Gartner Group, Inc. (see story, page 28).

The new technology may make multimedia easier at the workgroup or departmental level, but it will not scale up to the enterprise, said Thomas Nolle, president of the consultancy CIMI Corp. in Voorhees, N.J.

At the enterprise level, multimedia applications have to move through routers, which are unable to prioritize data and ease collisions or jitter, he said.

Sources familiar with 3Com's approach describe it as a standards-compliant twist on Ethernet's collision-avoidance mechanism.

"What [3Com is] doing is causing collisions, purposely, to jam the other stations," said Charlie Giancarlo, vice president of corporate development at Kalpana, Inc., a maker of switched LAN products.

"They fool the other stations into thinking the line is busy," he added.

Users are uncertain about the strategy.

"We're going to bypass trying to Band-Aid Ethernet for multimedia," said Allan Robel, senior network analyst at Indiana University's Bloomington campus. "We thought about using switched Ethernet, but we're looking now at 25M bit/sec ATM."

But some vendors said extending Ethernet is worth a shot. "Ethernet now is not conducive to multimedia — there are collisions galore," acknowledged Greg Newman, director of product management for Oracle's Corporate Media Server.

But an intelligent multimedia server, coupled with improved Ethernet, could bring multimedia to desktops over existing nets, he said.

Oracle is planning to support MEE via its media server and connectivity software.

Starlight, which makes the StarWorks and StarWare video server software products, said it supports any effort that makes handling video traffic over existing networks easier. Novell has also pledged its support, saying MEE will ease bandwidth problems on NetWare nets.

Comments?

See "How to reach us" on the back page.

AT&T, Sprint

Continued from page 1

among several 800 initiatives in coming months, including a push for global 800 numbers and outsourced call centers.

But for Sprint, whose 800 business has contributed to a near doubling of corporate profits in the past year, the service will culminate nearly six months of intensive study of the call center market with user focus groups, which included users in the airline business and others who were approached by AT&T.

The carrier is putting a lot on the line with this approach, said Gary Andresen, principal analyst with Dataquest, Inc. in San Jose, Calif.

"In order to do this, it takes bucks. In the short term, [Sprint is] financing the equipment," Andresen said.

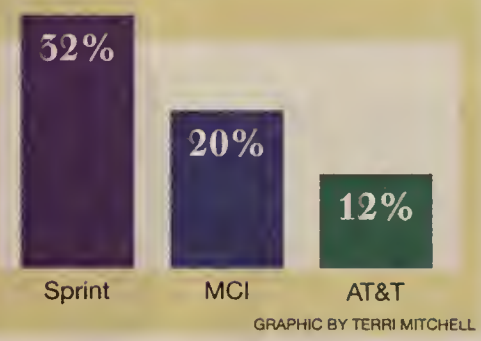
"But in the long term, it can make more money [on 800 service] than ever before. You're talking about money that just keeps coming and coming and coming," he added.

For users under pressure to harness technology to improve customer service, both companies' programs offer a way to get into the call center market without the huge capital outlay usually required (see graphic, page 1).

AT&T's approach holds special appeal for the banking industry because of the likelihood of mergers following the recent congressional passage of the nation's first interstate banking law, according to an information systems official at one of the country's leading banks.

Toll-free tally

Growth in 800-service revenues among the Big Three long-distance carriers from 1993 to 1994:



GRAPHIC BY TERRI MITCHELL

The combination of 800 number portability and the ability to get new ACD equipment with limited expense would let the acquiring bank perform a smooth call center transition.

"They've been beating our door down [about Network ACD] since we first discussed it," said the bank official. Those discussions have included Chairman Robert Allen to help win the bank's business, he said.

But other users — including AT&T loyalists — validate the hesitation Sprint found among users in its focus groups over giving up control of ACD equipment.

"Traditionally, a network-offered application would not have the same flexibility as hardware and software on your site," said Renee Seay, telecommunications manager at Advanced Micro Devices, Inc. and president of AT&T's Global Definity Users Group.

Bob Camastro, United Airlines' manager of reservations planning and development, warns that Network ACD does not yet provide the sophisticated level of call routing promised (see story, this page).

But AT&T also has been seeking out resellers that could offer the appeal of devising highly recognizable 800 numbers that could be shared by users, said Steve Sazegari, senior analyst with the consulting firm of Ryan Hankin Kent, Inc. in South San Francisco.

And on the international front, a battle is developing between AT&T and MCI Communications Corp. over the future of international toll-free numbers.

European officials have accepted the concept of 800 as an international standard for toll-free calling, said Phil Onstad, an Edison, N.J.-based consultant for the International Communications Association.

But to mimic local dialing patterns, the Europeans would like to be able to dial eight digits after the 800 prefix, which would virtually eliminate the possibility of U.S. companies making their 800 numbers available to European customers.

"AT&T has been helping us quite a bit in trying to get acceptance of a seven-digit code," Onstad said. "But MCI has been pushing and shoving us to go with the European [proposal] for eight digits, and no grandfathering."

United's stand on AT&T's ACD service

If you want to eliminate automatic call distributors in your inbound call centers, beware: The pioneer user of network-based ACDs does not yet enjoy the full call-routing functionality that other big AT&T customers are achieving with premises-based ACDs.

United Airline's eight call centers are supposed to operate as a virtual call center, with Definity G3 ACDs in the corresponding AT&T central offices (CO) communicating continuously to enable every call to a United 800 number to be routed to the next available agent (*NW*, Oct. 18, 1993, page 1).

But this capability — known in AT&T's lexicon as "next available agent advanced" and to industry experts as "first in, first out" — will not be ready until next year, according to Bob Camastro, United's manager of reservations planning and development.

"[Next available agent] has created a definite improvement in our customer service level," Doherty said.

Right now, the CO-based Definities can only route calls to the next available queue, Camastro said. Just as in choosing a line at a grocery store, if the switches choose the shortest queue but the calls in that queue do not move fast enough, the caller could still be on hold while the next caller is being served.

The only exception to this is if all eight queues are empty, but that does not happen very often, Camastro said.

By contrast, at Philadelphia-based Rosenbluth International, Inc., a chain of travel agencies, data about the status of agents at each of 14 main call centers is fed every 10 seconds to customer routing processors (CRP) — Sun Microsystems, Inc. or Stratus Computer, Inc. workstations.

Every time an 800 call arrives in the AT&T network, the carrier's signal control points consult the CRPs through dedicated links to find the next available agent throughout the nation who is qualified to answer the call, explained Linda Doherty, Rosenbluth's manager of net operations.

"It's created a definite improvement in our customer service level," said Doherty, who put the system up in January. "It's eliminated the hold." AT&T officials said a similar system went live this year at JCPenney Company, Inc.

AT&T pitched Rosenbluth about implementing the carrier's Network ACD, but since Doherty already had paid for Definities, it was not an attractive proposition. "United had very old equipment," Doherty said. "I already had the [ACD] platform in place."

Network ACD still holds an additional advantage for United — it eases equipment maintenance requirements. "They want to focus on the business of filling their seats," said AT&T Product Manager Mike Wert.

But apart from that, Camastro suggested that AT&T's Network ACD program, if it became generally available, might be best for users other than the nation's largest telemarketers. "Small call centers still have to deal with the cost of purchasing and maintaining an ACD," he said. "They may be better off leasing the service, even for a single office."

BY DAVID ROHDE

NETWORK WORLD

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Back to Reality

Mainframes refuse to lie down and die; Novell and Microsoft squabble again.

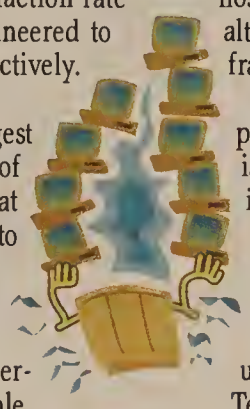
BY DAVID J. BUERGER

Mainframe computers. PC bigots damn them to fast oblivion. Network managers curse their connectivity complexity. Corporate bean counters scheme to cut their heavy maintenance costs.

Some people revile mainframes almost as much as paying taxes.

Yet what has the recent bout of reengineering (i.e. dumping the mainframe for PC-based client/server solutions and firing half of the IS staff) done? Not much.

Recent polls by Arthur D. Little and CSC Index found the dissatisfaction rate among executives who reengineered to be nearly 85% and 50%, respectively. Ouch!



These dismal results suggest we should reexamine the role of the mainframe and treat it at least as an intermediate step to client/server, instead of immediate junkyard fodder.

Despite its drawbacks, the big iron does have a place in certain situations. It is reliable, secure, well managed and powerful. And it gets jobs done — big ones — for most of corporate America.

Last week, IBM moved to forestall the mainframe's fall from favor and promote its coexistence with PCs and LANs. Executives acknowledged that IBM next spring will ship a new LAN adapter for Enterprise System/9000 mainframes.

The Open Systems Adapter will attach up to 80 token-ring or Ethernet LANs or 32 Fiber Distributed Data Interface LANs — without any controllers or routers.

IBM said the arrangement will support SNA/LAN, TCP/IP and Novell IPX LAN traffic. By using IBM's LAN Resource Extension software, the mainframe will also be able to act as a server to Novell's NetWare servers.

That's the good news. The bad news is this product only works with IBM's newer mainframes, which must run the newest versions of operating systems and applications. Officials blamed this restriction on the adapter, which requires a special ESCON channel on the host. Of course, there could be an alternative motive of forcing mainframe upgrades.

Officials also would not name a price for the adapter. Let's hope it is reasonable. I sense a negative incentive since the adapter could cut into IBM's controller and router product lines.

In any case, this product and other channel-attached products from vendors such as Bus-Tech, Cabletron and Cisco make it easier for users to move proven mainframe benefits into the LAN world.

It's the software, stupid

Of course, providing a channel-type host connection is just half the equation. The other half requires software to maximize attachment capacity and optimize performance.

Novell has been the SNA gateway leader because it dominates the LAN market. A warning flare went up last week, though, when a Novell product manager angrily blasted the contents of a draft Microsoft marketing document comparing the benefits of using the new SNA Server 2.1 instead of NetWare for SAA 1.3b.

Such squabbling is not new. The same players duked it out over NetWare vs. LAN Manager in the late 1980s. Novell won that round but this time has something to worry about.

One Novell complaint focused on the accuracy of Microsoft-financed SNA Server testing done by the Manasquan, N.J.-based Tolly Group. Results released in August showed that SNA Server walloped Novell's performance on 1M-byte file transfers from the mainframe as more nodes and background traffic were added to the LAN.

Tolly stands by its tests and said it shared test details with Novell two weeks ago and Novell has not responded.

Microsoft claims that SNA Server gives up to 400% better performance and supports as many as 2,000 PCs, 10,000 Logical Unit sessions and 250 Physical Unit connections per server.

Novell disputes those numbers, but even if they are half-true, they show that SNA Server significantly dwarfs the capability of similar products from Novell and other competitors.

You can draw your own conclusions from this skirmish.

When viewed in conjunction with IBM's adapter, however, it's clear that the quality of products used to link PC LANs with mainframes gives network managers a new level of flexibility. And that is a crucial part of evolving line-of-business applications without jettisoning their foundation.

Mr. Mac-PC

IBM dominates the news, and it isn't all good.

The Wall Street Journal last week reported that IBM may sink more than $1 billion into salvaging its PowerPC strategy and alliance with Apple. Part of that money is aimed at giving IBM rights to the Macintosh operating system.

Ho hum — does anyone really care?

There aren't many markets that require PC and Macintosh applications to run on the same platform. One comprises newspaper and magazine editors. Their need is to merge the "front-end" world of reporters who write stories on PCs and the "back-end" world of illustration and page makeup software. This market's small size makes it a poor place to recoup that investment.

In addition, Journalists are the ultimate word-of-mouth customer — especially if the hardware and software don't work.

Buerger is an industry consultant and contributing editor to *Network World*. E-mail your reactions to dbuerger@pipeline.com or call (516) 883-4944. Flames are welcome.

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CyberSpeak

Voices from the reader network

IBM is boosting OS/2's network support. How will it fare vs. Windows NT and other competitors?

"OS/2's networking looks promising, but the test will be if it is easier to install and administrate than previous versions. Setting up Windows NT workstations and servers for my department was painless. Outside of a few questions on what protocols should be installed, the setup program correctly configured the network hardware and drivers. OS/2 will have to match or beat Microsoft here.

"As software project manager, I really think Windows will continue to edge out OS/2.

"The transition to Win32 from Windows 3.1 requires very little effort. The payback is software that will run on servers and workstations with no modifications. Add to that Windows NT's built-in job scheduling, replication, auditing, E-mail and tape backup and you have a robust environment for providing applications."

Gary Hamilton, network manager/software project manager, a major financial firm in New Jersey

"If IBM comes out [with the network support] in a timely manner — before the next Windows NT — it could help OS/2 gain a larger share of the market."

Howard Richter, senior systems analyst, Industrial Computer Corp., Atlanta

"The built-in client network support won't have much impact since the NetWare Requester for OS/2 can be had for free already.

"The OS can stand on its own merits alone; it is solid and reliable. That's what I look for!"

Robert Steuer, Rutgers University, Camden, N.J.

NextWeek
CyberSpeak Out!

Cisco says the best way to pull mainframes into LAN internets is through channel-attached routers. Do you agree?

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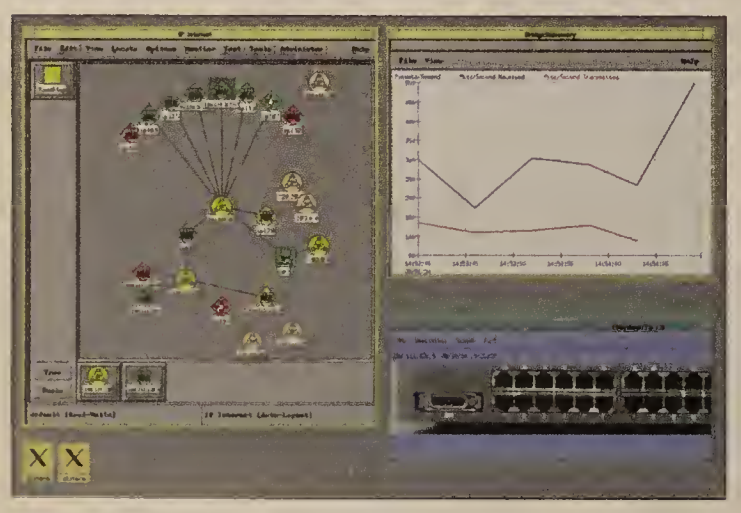

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